



BACnet Gateway

Basic : MIM-D00A

Model : MIM-B17

MIM-B17C

Model Code : MIM-B17

MIM-B17C

SERVICE Manual

BACnet Gateway



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Refer to the service manual in the GSPN(see the rear cover) for the more information.



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1. Precautions

1-1. Precautions for the Service

- **Use the standard parts when replacing the electric parts.**
 - Confirm the model name, rated voltage, rated current of the electric parts.
- **Repair the disconnection of HARNESS securely when repairing the break down.**
 - If there is any connection error, it causes an abnormal noise and incorrect operation.
- **In case that you assemble or disassemble the products with laying it on the side, do work on the work cloth.**
 - If not, the exterior of products can be scratched.
- **Remove dust and foreign materials from harness, connection part, and inspection part thoroughly when repairing the break down.**
 - It protects the danger of fire such as tracking and short.
- **Check the assembly status of parts after repairing the break down.**
 - It should be same as the status before repairing.

1-2. Precautions for the Static Electricity and PL

- **As the PCB power terminal has a weakness for the static electricity, pay attention to it during the repair and measurement.**
 - Work with insulation gloves during the repair and measurement of PCB.
- **Check the distance between the product and the other electronic appliances such as TV, video, and audio.**
It should be over 2m.
 - If not, it causes a bad picture quality or a noise.
- **Repairing the products by consumer should be strictly prohibited.**
 - There is a danger of electric shock or fire due to incorrect disassembly.

1-3. Precautions for the Safety

- **Do not pull any electric wires and do not touch an auxiliary power switch with a wet hand.**
 - There is a danger of electric shock or fire.
- **In case any wire or power plug has been damaged, replace it to eliminate any possible danger.**
- **Do not bend the power cord by force and do not put any heavy object on the power cord.**
 - There is a danger of electric shock or fire.
- **Do not use multi socket.**
 - There is a danger of electric shock or fire.
- **Ground the product if necessary.**
 - Be sure to ground the product if there is any danger of electric leakage due to water or moisture.
- **Be sure to turn off the auxiliary power switch or pull out the power plug during replacement or repair of electric parts.**
 - There is a danger of electric shock.

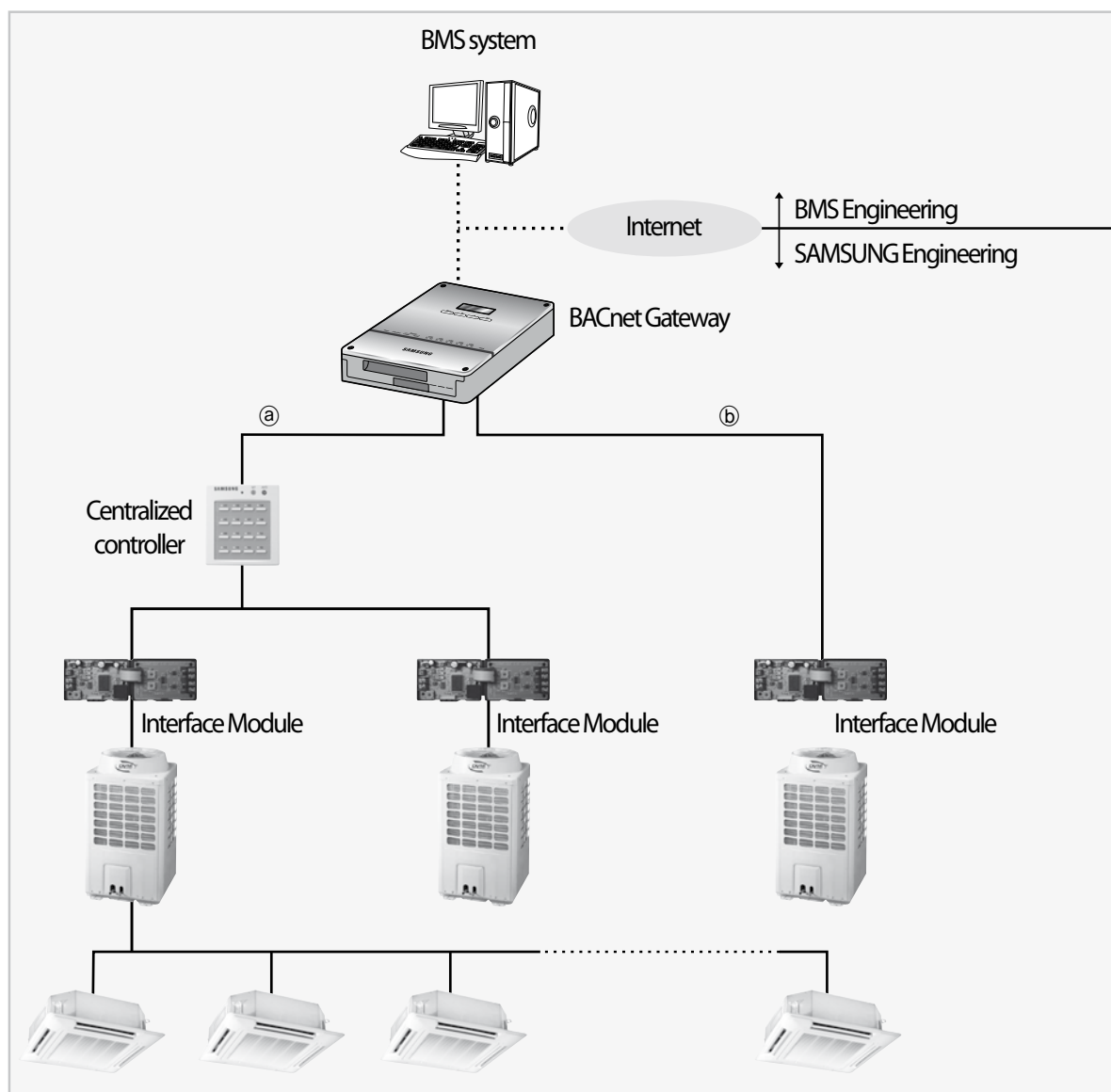


2. Product Specifications

2-1. The Feature of Product

1) BACnet Gateway

- **Connecting BACnet Gateway with Centralized Controller (Type ㉠)**
 - You can control up to 16 Centralized Controllers and 256 indoor units by using BACnet Gateway.
- **Connecting BACnet Gateway with Interface Module (Type ㉡)**
 - You can control up to 80 Interface Modules and 256 indoor units by using BACnet Gateway.
 - ※ You can connect 16 Interface Modules in each communication channel.
 - When connected Interface Modules is more, Tracking time can be long.



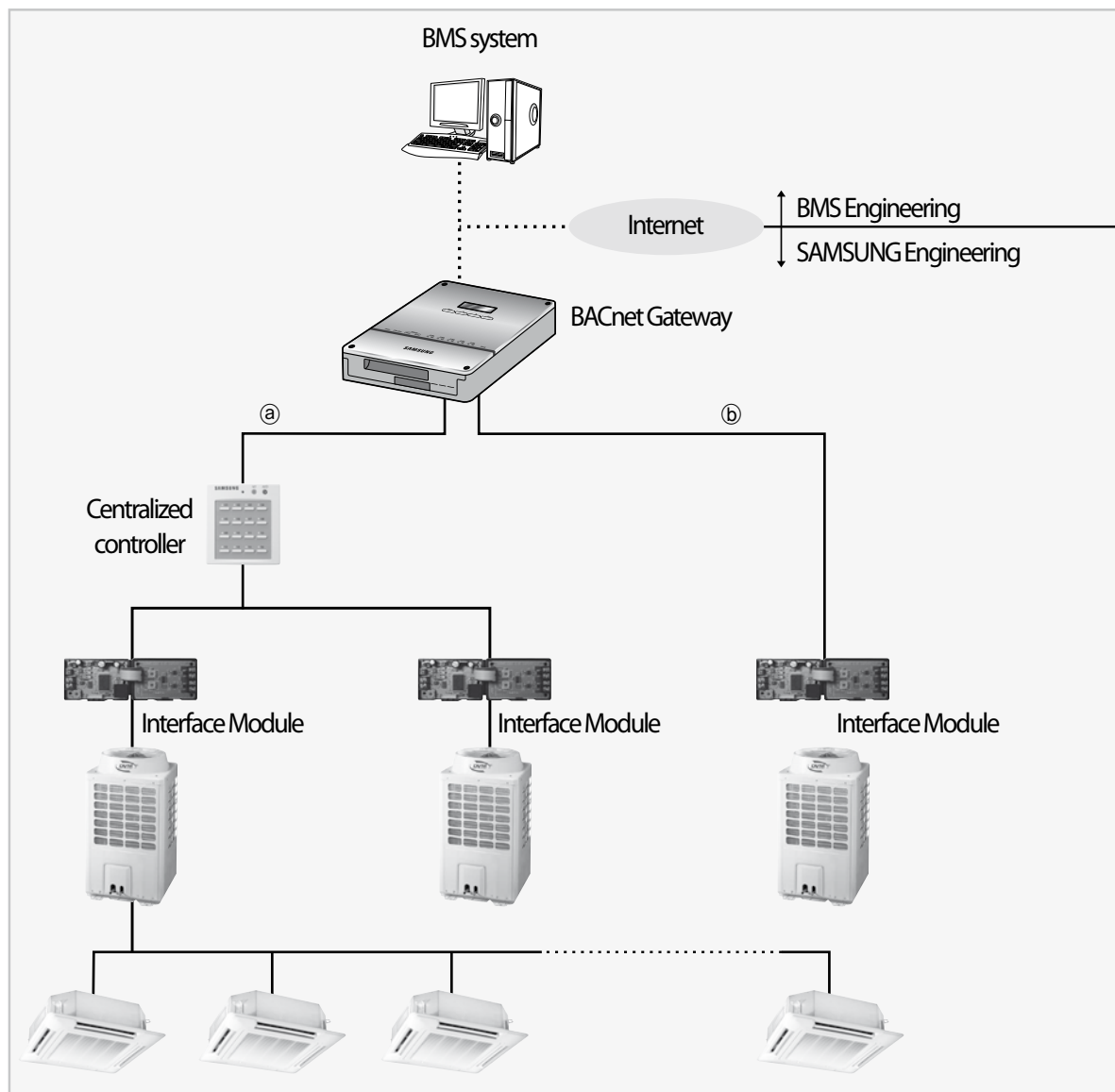


2-2. Product Specifications

| Item | | Remark |
|--------------------|-----------------|---|
| Power | | - Adaptor : DC Adaptor - Input Voltage : 100 ~ 240V, 50/60Hz, 1.0A - Output Voltage : 12V, 3A |
| Size | | 240(W)x255(H)x64.8(D) (Unit : mm) |
| Weight | | 1.48kg |
| Install Method | | Panel sticking |
| Display | LCD(Text) | |
| | LED | Power, CPU-Alive, Ethernet Linked, Ethernet Active, COM1, COM2, COM3, COM4, COM5 TX, RX, Check |
| | KEY | 4keys (Menu, ▲, ▼, Set) |
| DI / DO | DO(Dry Contact) | Digital signal output(10CH) |
| | DI(Dry Contact) | Digital signal input(10CH) |
| Communication Port | RS-232 | Debugging port |
| | RS485 | Connection port for external devices |
| | Ethernet | RJ45 connector (10/100Mbps) for Ethernet |
| Etc. | Data Backup | SD CARD slot (SD card is needed additional purchase) |



2-3. System Organization





2-4. Main Function

As an Internet based device for centralized management of system airconditioner, BACnet Gateway supports LAN and MAN. It can operate for 24 hrs without extra computer.

- **24 Hrs operation**

- Convenience with 24hrs, 365 day operation.

- **Independent operation and Electricity saving(DMS2 Function)**

- BACnet Gateway executes Schedule control, Peak electricity control, and Integration power distribution and independently without extra computer.
 - BACnet Gateway achieves Energy saving with no PC operation at all times.

- **Data storage(DMS2 Function)**

- BACnet Gateway stores and check the list of malfunction, installation information of indoor unit and the data of integration power distribution itself with built-in database.

- **Management of Large quantities units**

- The maximum 256 indoor units are connected to one BACnet Gateway realizing efficiency.

- **Automatic e-mail(DMS2 Function)**

- BACnet Gateway sends a e-mail automatically with the list of malfunction to pre-registered address when certain problem occurred.

- **Web-server**

- You can use various function remotely without extra program.
(Unit condition monitoring, Function control, list of malfunction, schedule setting etc.)

- **BACnet Support**

※ Samsung is not responsible for BMS Engineering which create each device and objects.

For futher directions regarding on BMS engineering, consult with specialized BMS related render.





MEMO



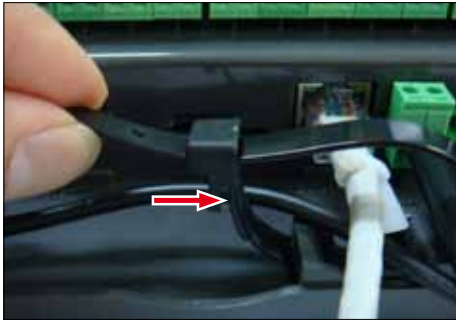




3. Disassembly and Reassembly

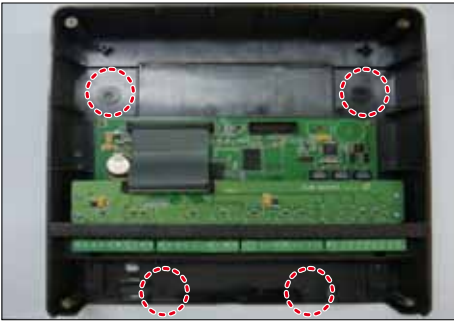
■ Necessary Tools

| Item | Remark |
|---------------|---|
| +Screw Driver |  |
| -Screw Driver |  |




3-1. Disassembly and Reassembly

| No | Parts | Procedure | Remark |
|----|--------|--|---|
| 1 | Common | <div>1) Unscrew 2 fixing screws. (Use +Screw Driver)</div> <div>2) Detach the lower cover.</div> <div>3) Press lower part of cable tie and detach the cable tie.</div> <div>4) Pull the bead-core part of adapter.</div> <div>5) Turn connector of adapter Counterclockwise.</div> | <div></div> <div></div> <div></div> <div></div> <div></div> |

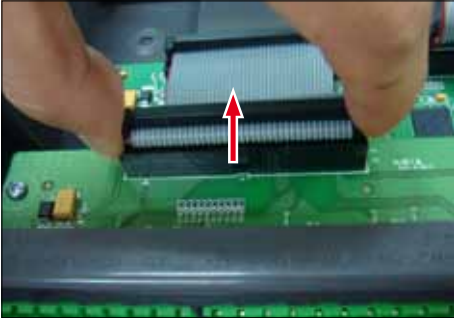

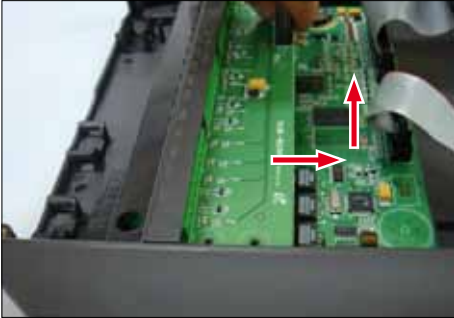


| No | Parts | Procedure | Remark |
|----|-------|---|---|
| | | 6) Detach the connector of adapter from BACnet Gateway. |  |
| | | 7) Detach connectors for 485communication, network and DI/DO. |  |
| | | 8) Unscrew at red circle part. (Use +Screw Driver) |  |
| | | Ref.) The case of using additional Hole for install, detach from wall after detaching upper cover. |  |
| | | 9) Push up BACnet Gateway. and pull the BACnet Gateway.0 front direction. |  |

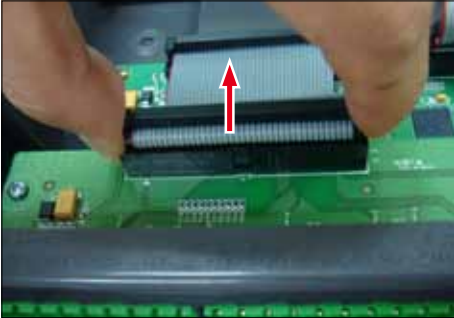
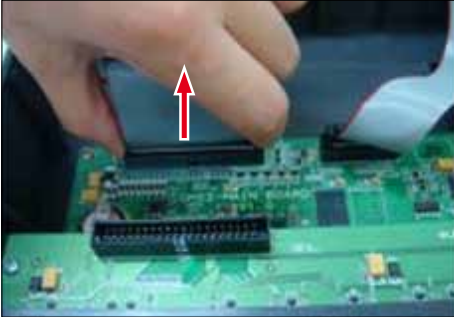

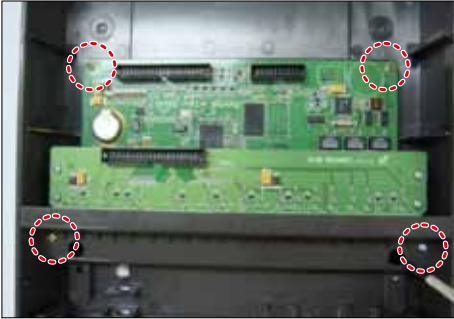



| No | Parts | Procedure | Remark |
|----|-------|--|---|
| | | 10) Unscrew 2 fixing screws at red circle. |  |
| | | 11) Pick up the upper cover. Be careful not to damage LED on sub board. |  |
| | | 12) As the shown picture, detach the cable between main and LCD board. |  |

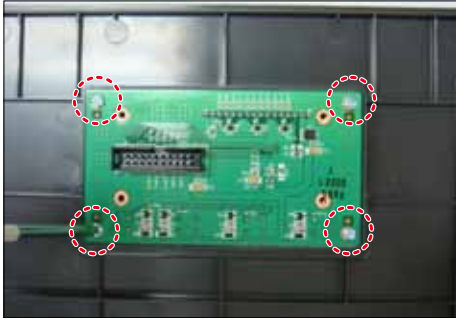
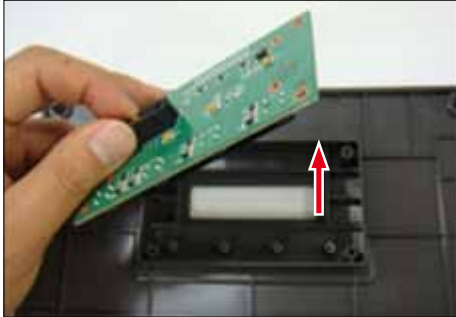
3-2. Sub board Disassembly and Reassembly

| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <p>1) As shown picture, detach the connector pulling upper direction.</p> <p>2) Unscrew 4 fixing screw on sub board. (Use +Screw Driver)</p> <p>3) Detach the sub board from BACnet Gateway.</p> |    |

3-3. Main board Disassembly and Reassembly



| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <p>1) As shown picture, detach the connector on sub board pulling upper direction.</p> <p>2) Detach connector on main board, as a same way.</p> <p>3) Detach connector for connecting display board.</p> <p>4) Unscrew 4 fixing screw on main board. (Use +Screw Driver)</p> <p>5) Push up the main board and detach it from BACnet Gateway.</p> |      |

3-4. Display board Disassembly and Reassembly




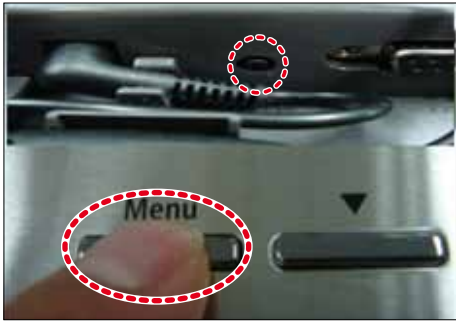

| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <div>1) Unscrew 4 fixing screw on display board. (Use +Screw Driver)</div> <div>2) Push up the display board and detach it from upper cover.</div> | <div></div> <div></div> |




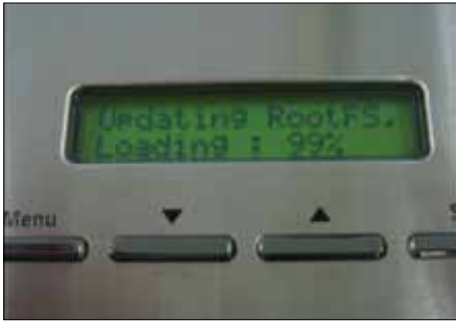

4. Program Update

■ Necessary Tools






| Item | Remark |
|---|---|
| +Screw Driver |  |
| SD-CARD - At least 512MB - Type: Normal, SDHC |  |


4-1.OS Update

| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <p>1) Unscrew 2 fixing screws of the bottom. (Use +Screw Driver)</p> <p>2) Pull the cover of the bottom, and detach lifting up.</p> <p>3) Insert a SD card for updating software.</p> <p>4) Push [Reset] button once with pushing [Menu] button. - Keep pushing [Menu] button until "1. Update O/S" is showed.</p> <p>5) Push [Set] button after seeing "1.Update O/S" referring the right picture. (If you can't see "1.Update O/S" after completing 1)~4) with inserting SD card, Confirm whether your SD-Card has a problem.)</p> |      |


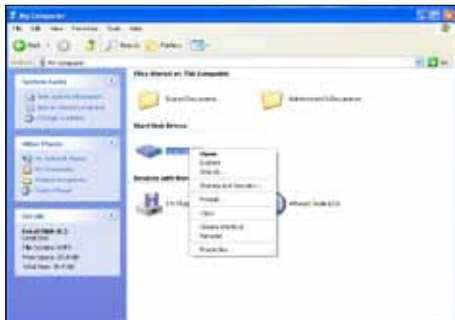


| No | Parts | Procedure | Remark |
|----|-------|---|---|
| | | 6) Unscrew 2 fixing screws of the bottom. (Use +Screw Driver) Like the right picture, Kernel update is completed. |  |
| | | 7) Click [▲] button like the right picture. |  |
| | | 8) Push [Set] button after seeing "Update RootFS". |  |
| | | 9) "Updating RootFS" is showed, the program writing step is progressed. |  |
| | | 10) After showing "OK" under "Updating RootFS" like the right picture, updating of Root File System is completed. |  |

4-2. Application Update using SD Card


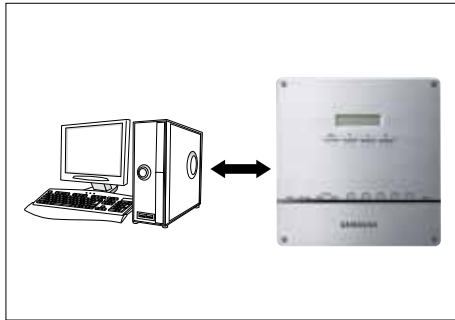

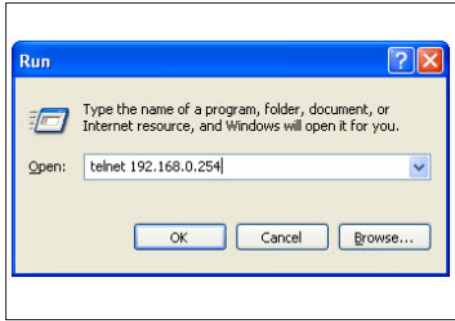
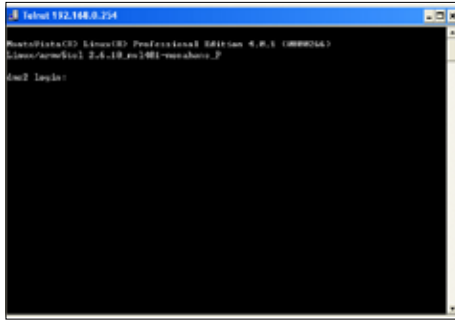
| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <p>1) Insert a SD card for updating.</p> <p>2) Push [Reset] button once.</p> <p>3) System is reset, Application is updated.</p> <p>4) "remove SD card" is showed like the right picture, detach SD card pushing it one more time.</p> <p>5) There is nothing on the display for a while after removing SD card, and system is reset.</p> |      |

| No | Parts | Procedure | Remark |
|----|-------|--|---|
| | | 6) After completing application update, confirm IP, time and regular operation . |  |

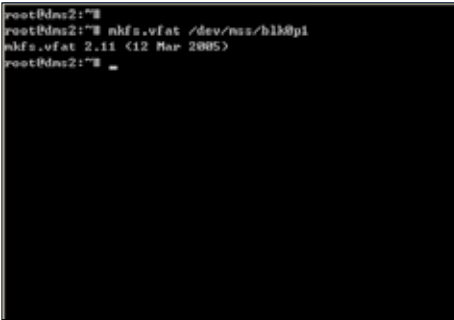
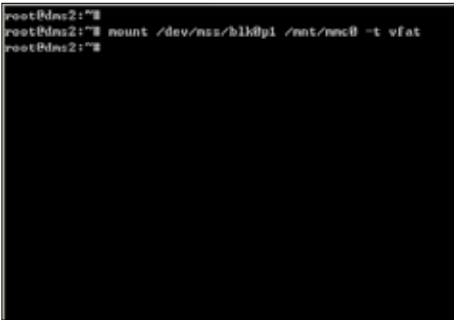

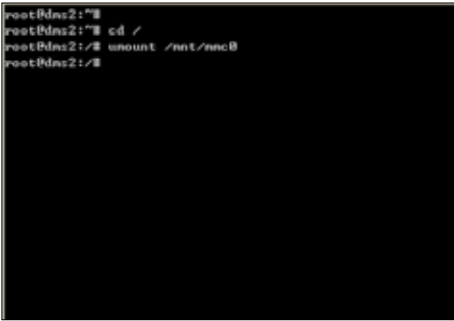

4-3. How to make OS Update SD Card using PC

| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <p>1) Connect to a PC after insert a SD card into a SD card reader.</p> <p>2) Select 'Format' with right-click on the created 'Removable storage devices'.</p> <p>3) Select 'FAT32' of 'File system', and start format pushing [Start] button.</p> <p>4) Format completed, Copy the provided OS files of BACnet Gateway to the top in SD card. - Provided OS files : rootfs.bin, vmlinux, xbl.bin, xbl-elf32, zImage</p> <p>5) Remove SD card from PC after completing copy.</p> |     |

4-4. How to make OS update SD Card using BACnet Gateway


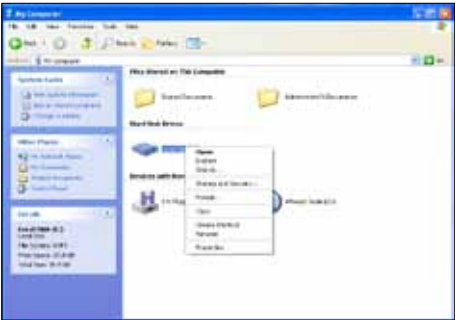


| No | Parts | Procedure | Remark |
|----|--------|---|--|
| 1 | Common | <p>1) Insert a SD card for updating.</p> <p>2) Connect BACnet Gateway to PC with a crossover lan cable.</p> <p>3) Set IP to 192.168.0.250. - You can connect all BACnet Gateway with 192.168.0.254.</p> <p>4) Type 'telnet 192.168.0.254' in the window of 'Run' after 'Start' button.</p> <p>5) Log on the telnet.</p> |      |




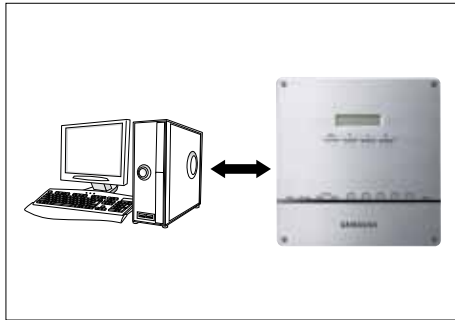

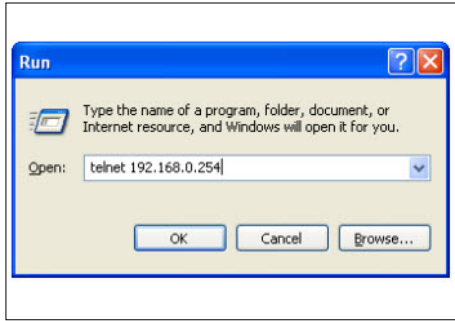
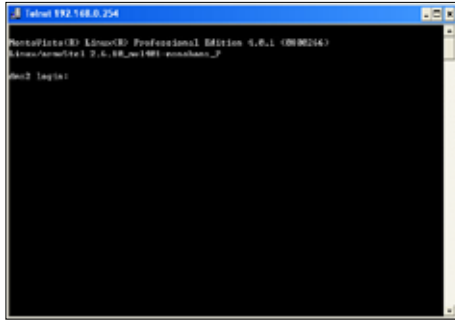
| No | Parts | Procedure | Remark |
|----|-------|---|---|
| | | 6) Format SD card. - mkfs.vfat /dev/mss/blk0p1 |  |
| | | 7) Run 'mount /dev/mss/blk0p1 /mnt/mmc0 -t vfat'. |  |
| | | 8) Copy the provided OS files of BACnet Gateway after connecting BACnet Gateway with FTP. You must close FTP window after completing copy. - ftp://192.168.0.254/./././mnt/mmc0 - Provided OS files : rootfs.bin, vmlinux, xbl.bin, xbl-elf32, zImage |  |
| | | 9) Type the below. cd / umount /mnt/mmc0 |  |
| | | 10) Remove SD card. |  |

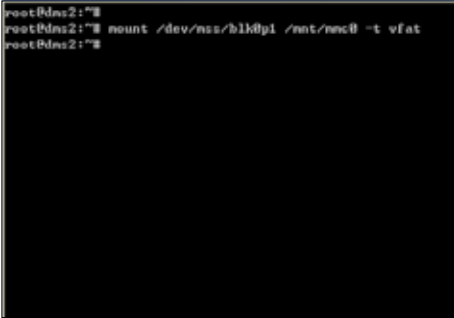

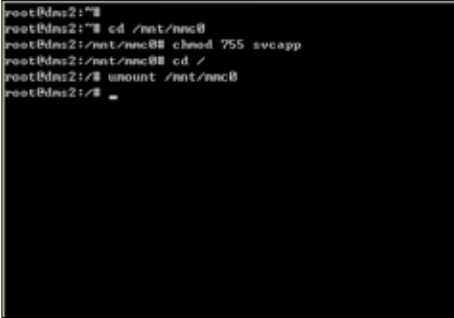



4-5. How to make Application SD Card using PC

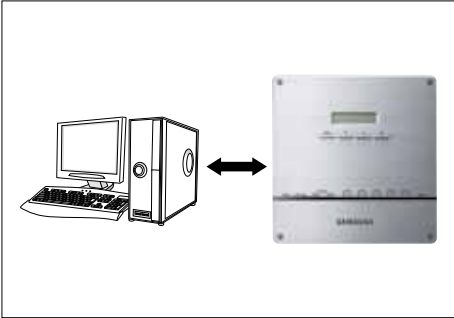



| No | Parts | Procedure | Remark |
|----|--------|---|--|
| 1 | Common | <p>1) Connect to a PC after insert a SD card into a SD card reader.</p> <p>2) Select 'Format' with right-click on the created 'Removable storage devices'.</p> <p>3) Select 'FAT32' of 'File system', and start format pushing [Start] button.</p> <p>4) Format completed, Copy the application files of BACnet Gateway to the top in SD card. - Provided OS files : BACnet Gateway.tar.gz, r, startapp, svcapp</p> <p>5) Remove SD card from PC after completing copy.</p> |     |

4-6. How to make Application SD Card using BACnet Gateway

| No | Parts | Procedure | Remark |
|----|--------|---|--|
| 1 | Common | <p>1) Insert a SD card for updating.</p> <p>2) Connect BACnet Gateway to PC with a crossover lan cable.</p> <p>3) Set IP to 192.168.0.250. - You can connect all BACnet Gateway with 192.168.0.254.</p> <p>4) Type 'telnet 192.168.0.254' in the window of 'Run' after 'Start' button.</p> <p>5) Log on the telnet.</p> |      |

| No | Parts | Procedure | Remark |
|----|-------|---|---|
| | | 6) Run 'mount /dev/mss/blk0p1 /mnt/mmc0 -t vfat' |  |
| | | 7) Copy the provided OS files of BACnet Gateway after connecting BACnet Gateway with FTP. You must close FTP window after completing copy. - ftp://192.168.0.254/./././mnt/mmc0 - Provided OS files : BACnet Gateway.tar.gz, r, star-tapp, svcapp |  |
| | | 8) Type the below on the telnet window. cd /mnt/mmc0 chmod 755 svcapp cd / umount /mnt/mmc0 |  |
| | | 9) Remove SD card. |  |

4-7. Application Update using FTP

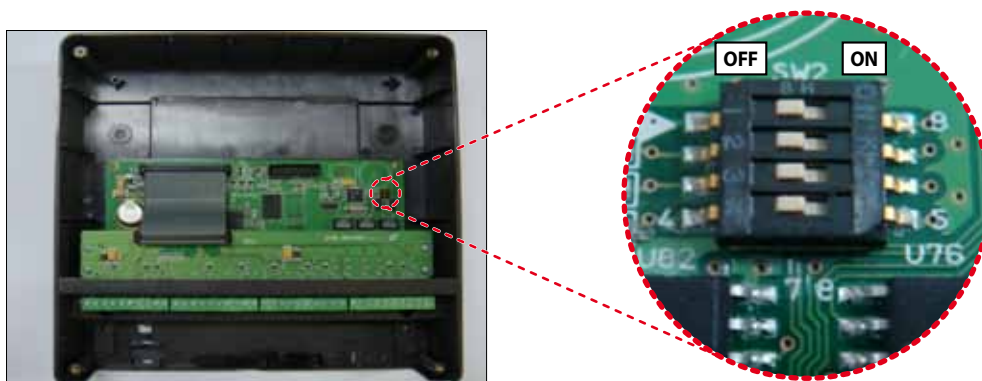
| No | Parts | Procedure | Remark |
|----|--------|--|--|
| 1 | Common | <div>1) Connect BACnet Gateway to PC with a crossover lan cable.</div> <div>2) Set IP to 192.168.0.250. - You can connect all BACnet Gateway with 192.168.0.254.</div> <div>3) Connect to BACnet Gateway with FTP. - ftp://192.168.0.254/././././dms</div> <div>4) Copy the provided application folder to PC and Rewrite it to the application folder in BACnet Gateway connected by FTP.</div> <div>5) Push [Reset] button once.</div> | <div></div> <div></div> <div></div> <div></div> |

5. Troubleshooting

5-1. Items to be checked first

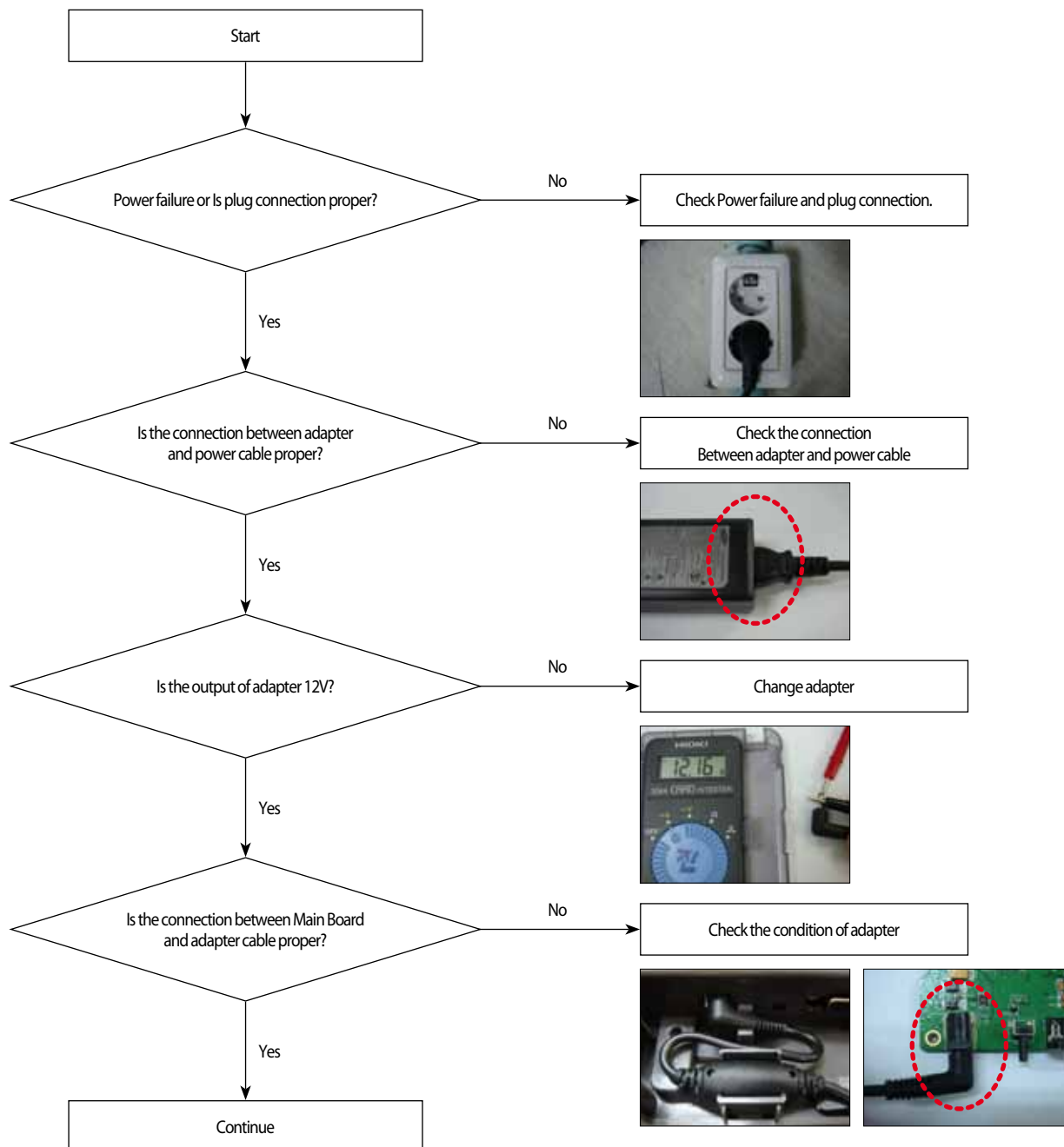
| Problem | Check | Explanation / Solution |
|---|---|---|
| BACnet Gateway.0 does not work | Power failure? | After checking power line of each devices, try again. |
| | Is there communication problem between BACnet Gateway.0 and other control units? | After checking communication line of each devices, try gain. |
| | Is the connection between adapter and power cable correct? | After checking connection between adapter and power cable, try again. |
| Can't access Log-in page | Is the Silverlight 2.0 version installed? | You can download Silverlight 2.0 version at http://www.microsoft.com/silverlight/ . |
| | Is the Windows XP SP2 installed? | Silverlight 2.0 version can run properly under Windows XP SP2. Under previous OS version, Silverlight 2.0 version cannot run poroperly. |
| Can't access Log in page From external PC | Is the setting value for netwkor correct? | You should consult with network manager. |
| | Isn't firewall set in local computer? | |
| Not monitoring centralized contol unit | Are the communication cables of BACnet Gateway(C1, C2) properly connected? | Connect BACnet Gateway communication cables (C1, C2) properly. Be careful to deal with the RS485 communication cable because it has polarity. |
| Peak power management is out of order | Are there no problems on power line of BACnet Gateway? | If there is problem on power line of BACnet Gateway, Peak power management function cannot operate properly. |
| Forget the IP address of BACnet Gateway.0 | At initial display, press [Menu] button and then "1. IP config" message will be displayed. Under that condition press [Set] button. | The IP address of BACnet Gateway is initialized at 192.168.0.100 when factory out. |
| Indoor units are out of order | Is Peak Power management or schedule control running? | According to schedule control and power management, indoor units can be turned it on or off. |
| | Is BACnet Gateway system time different from current time? | Set time of BACnet Gateway, according to real time. |
| External digital inputs are out of order | Is the external circuit constituted? | Check additional circuit for external input control function of BACnet Gateway. |
| | Is the contact control pattern of BACnet Gateway set to 1? | Set the pattern which fits to the control pattern you want. |
| Tracking Fail | Isn't there any indoor units? | BACnet Gateway is unsuccessful in tracking. Try it again. |

※ Ref. Switch for using digital input and digital output

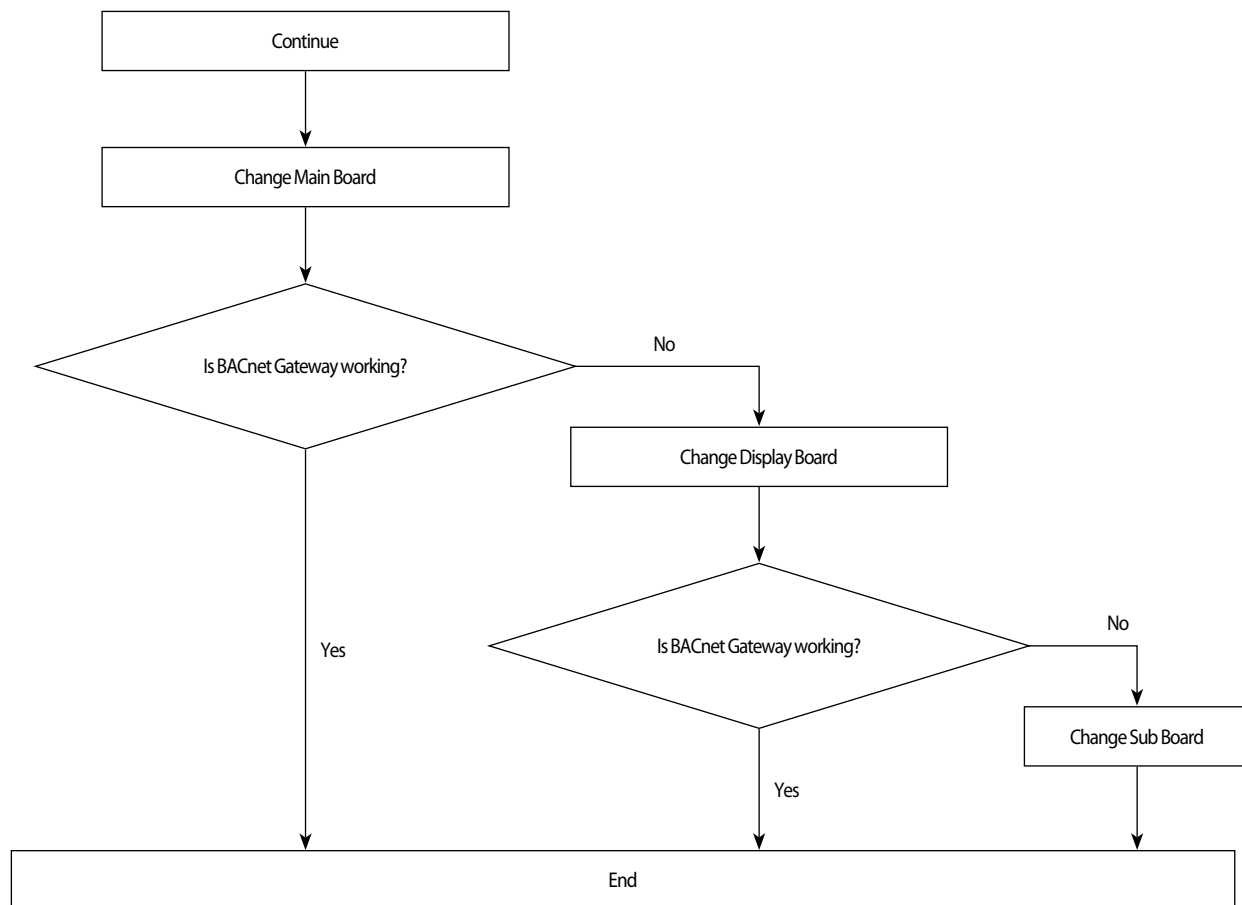


5-2. Fault diagnosis by symptom

5-2-1. When BACnet Gateway is not working

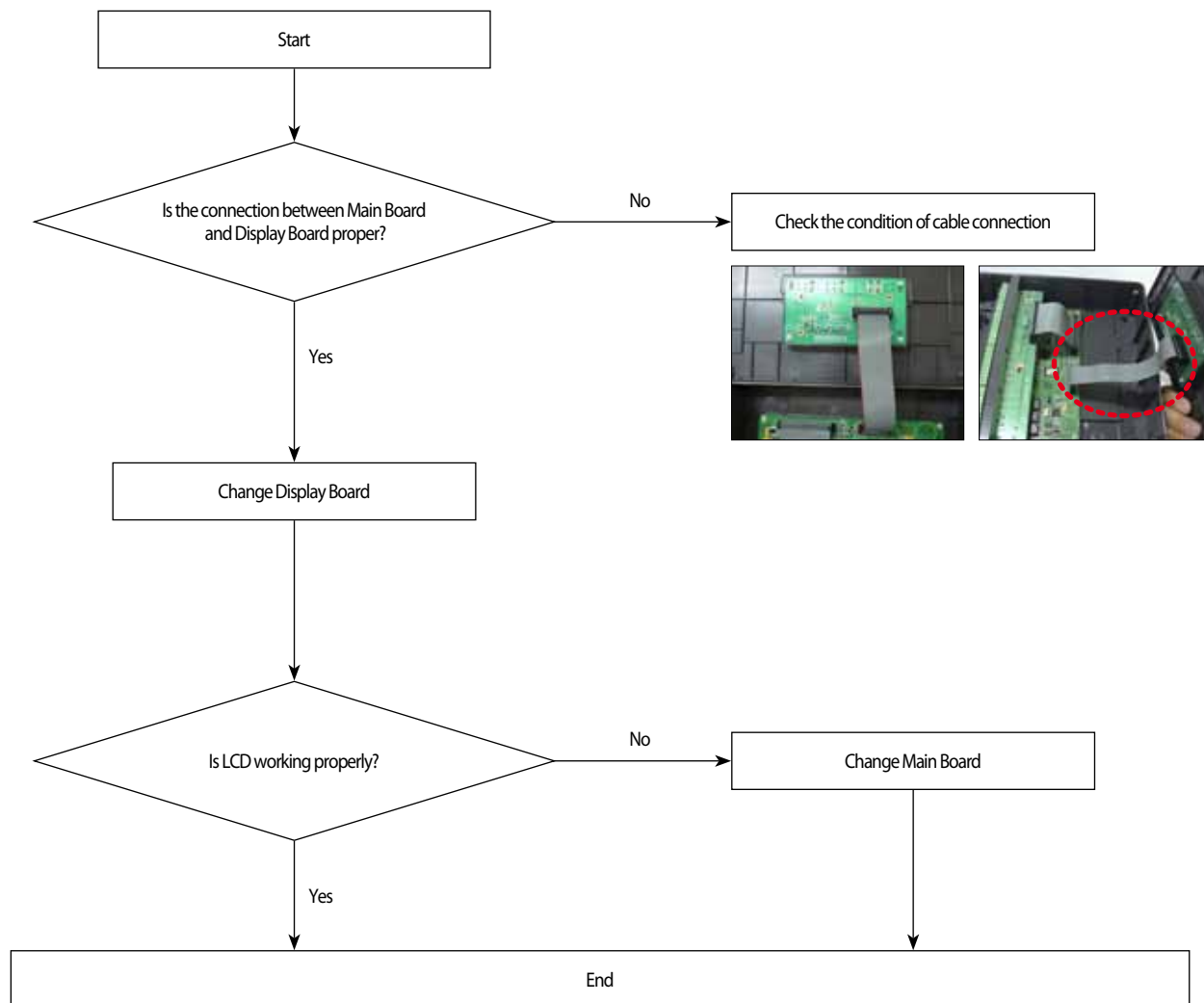


When BACnet Gateway is not working(cont.)

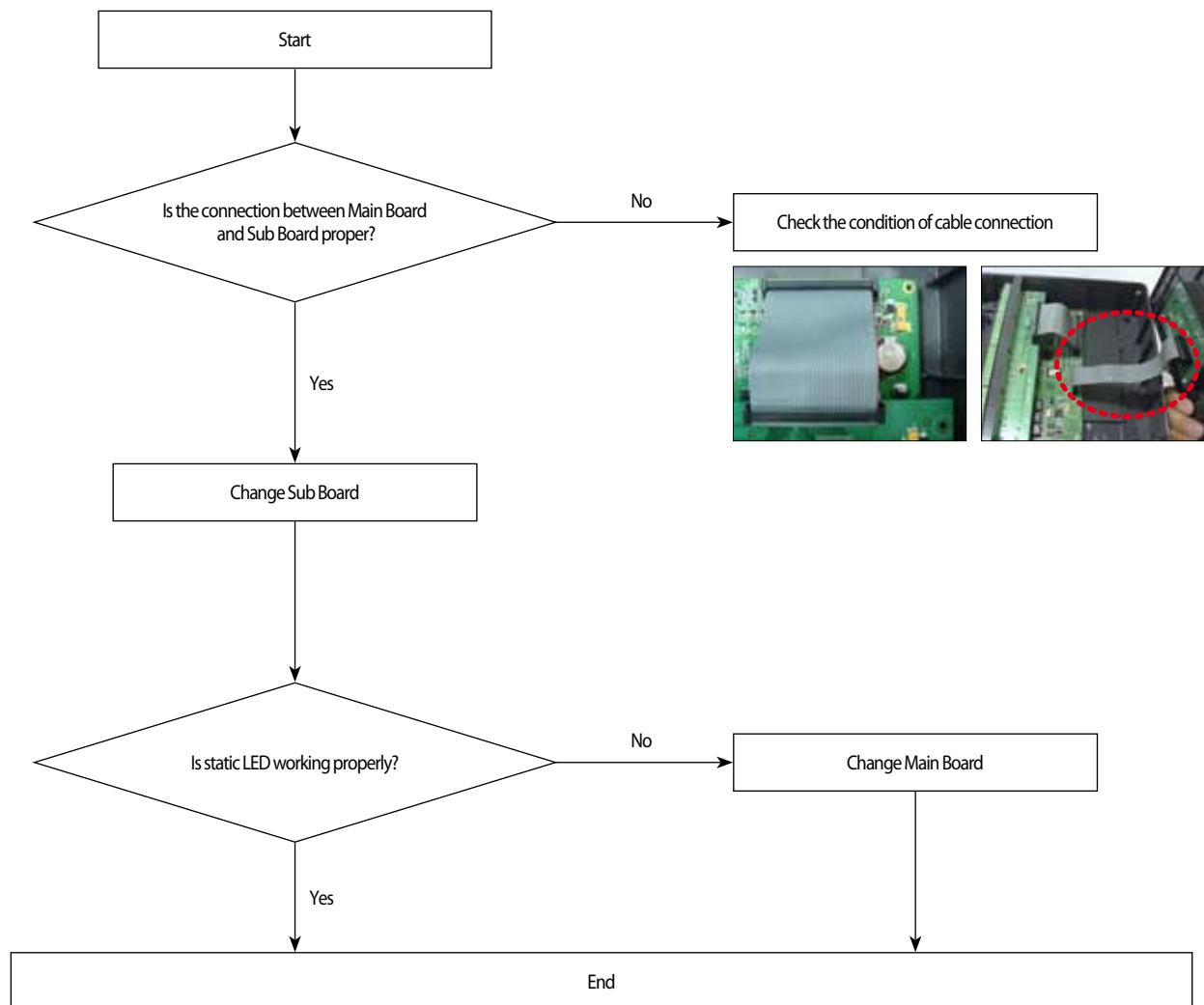




5-2-2. When the LCD Display is Not Working or the Backlight is Turing OFF

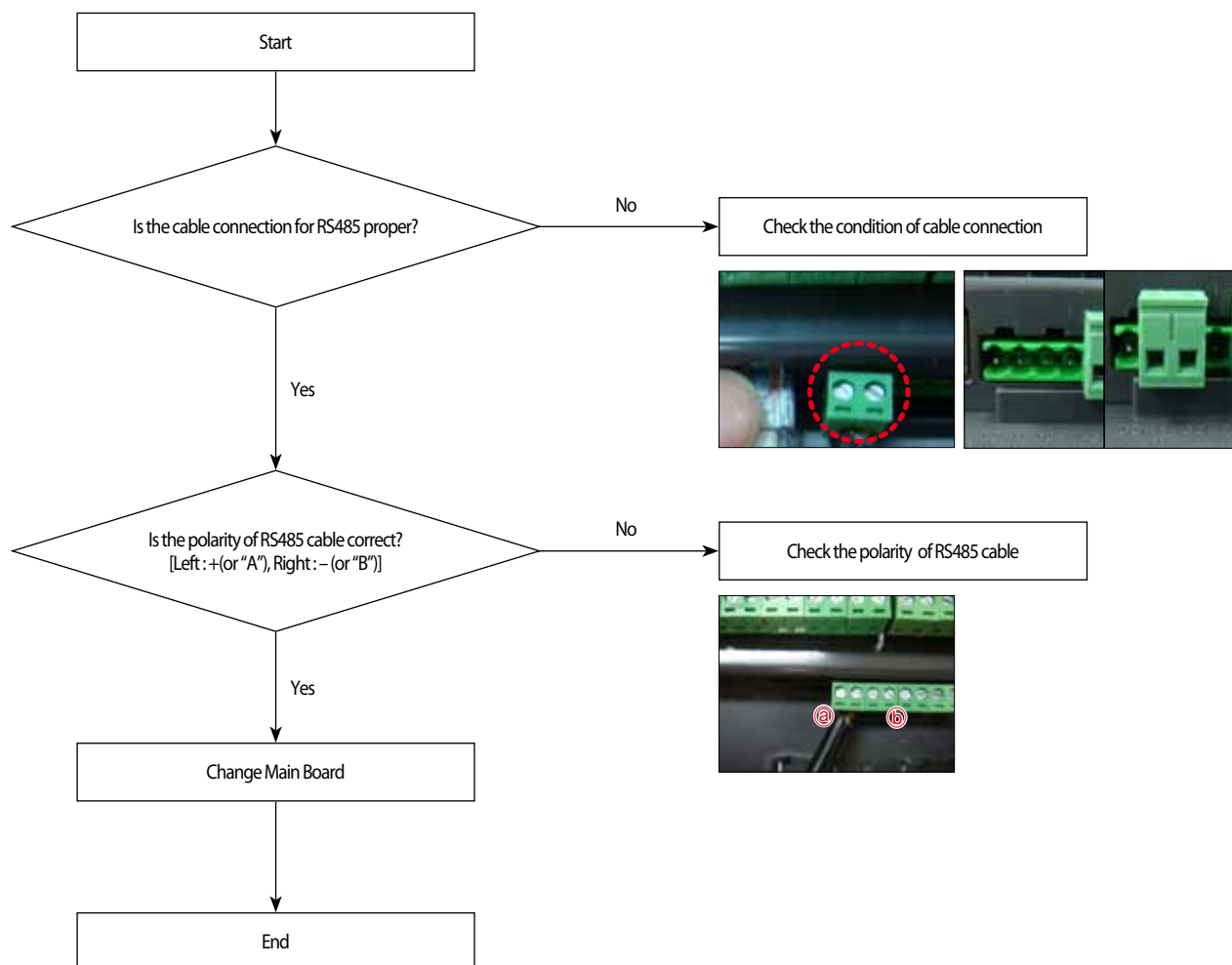


5-2-3. When the Static LED is Not Turning ON/OFF

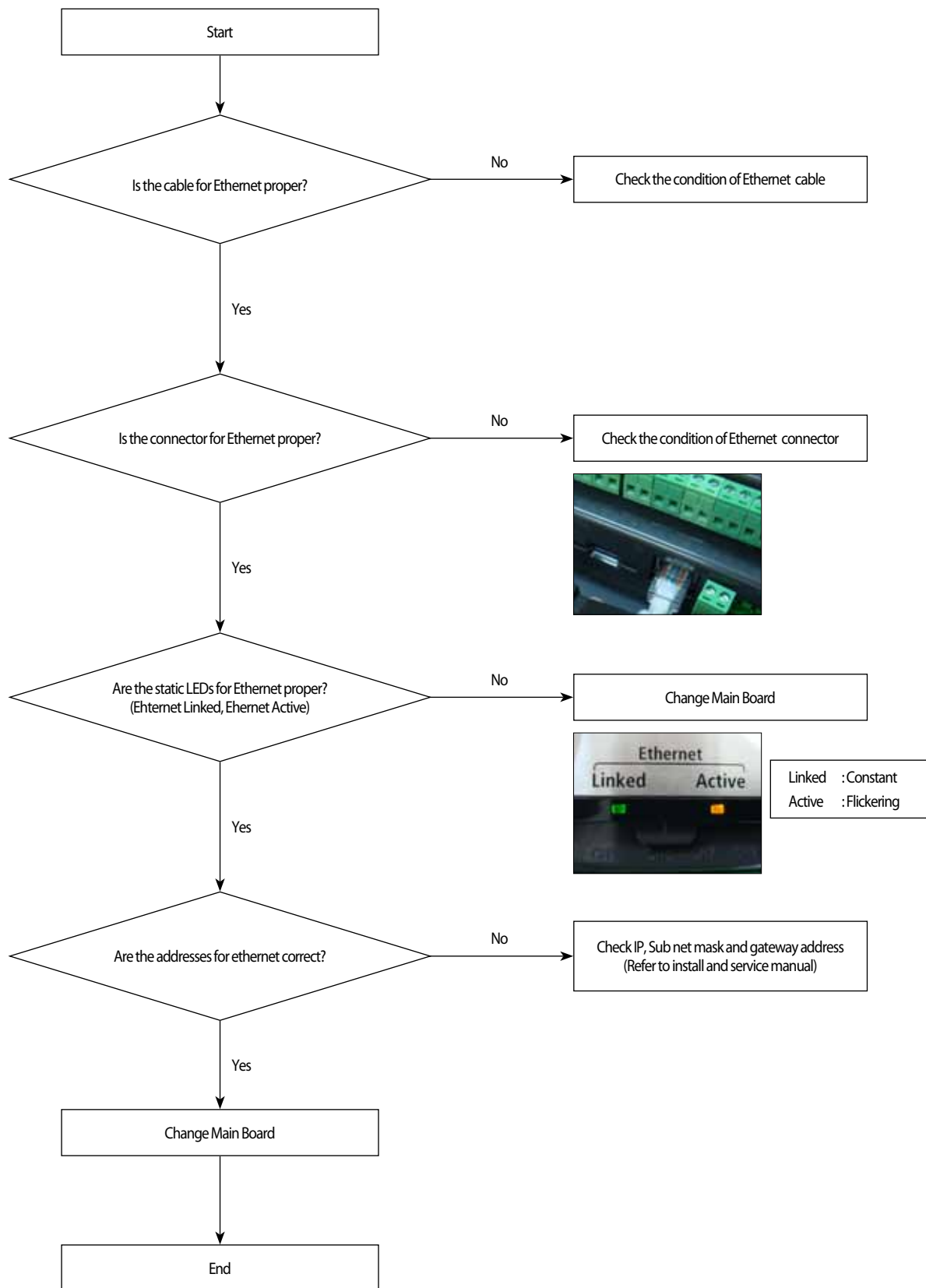




5-2-4. When the RS485 is Not Connecting

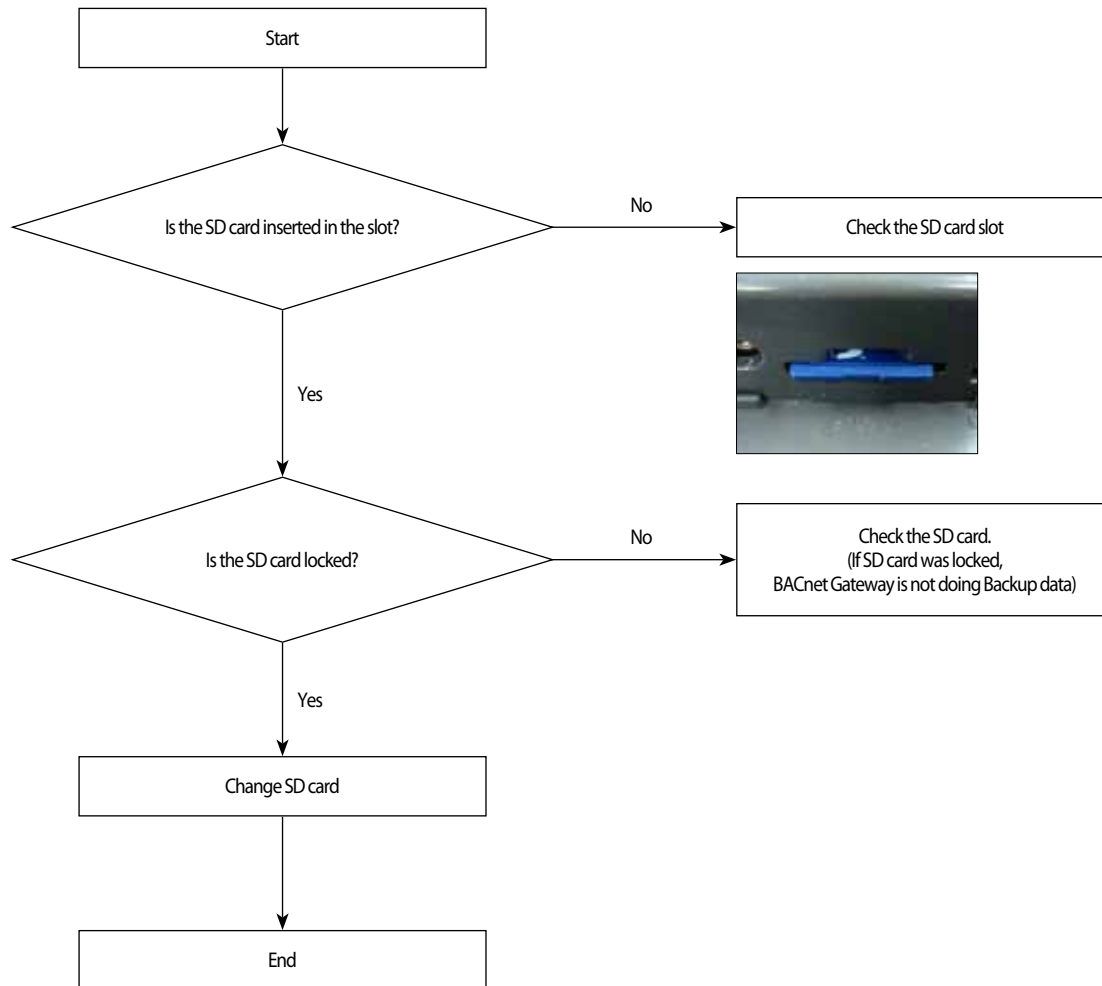


5-2-5. When the Ethernet is Not Connecting

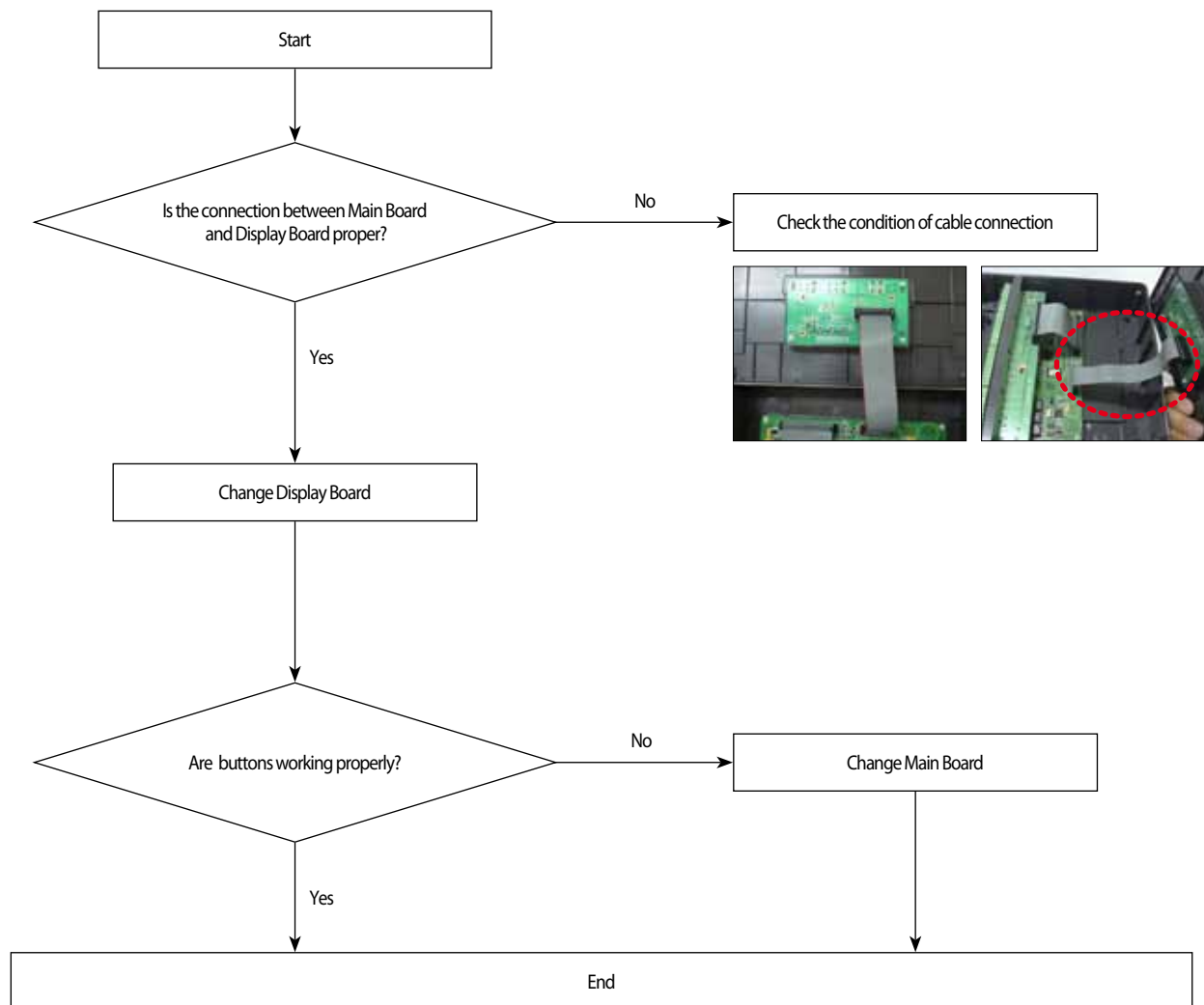




5-2-6. When the SD Card is Not Doing Backup Data

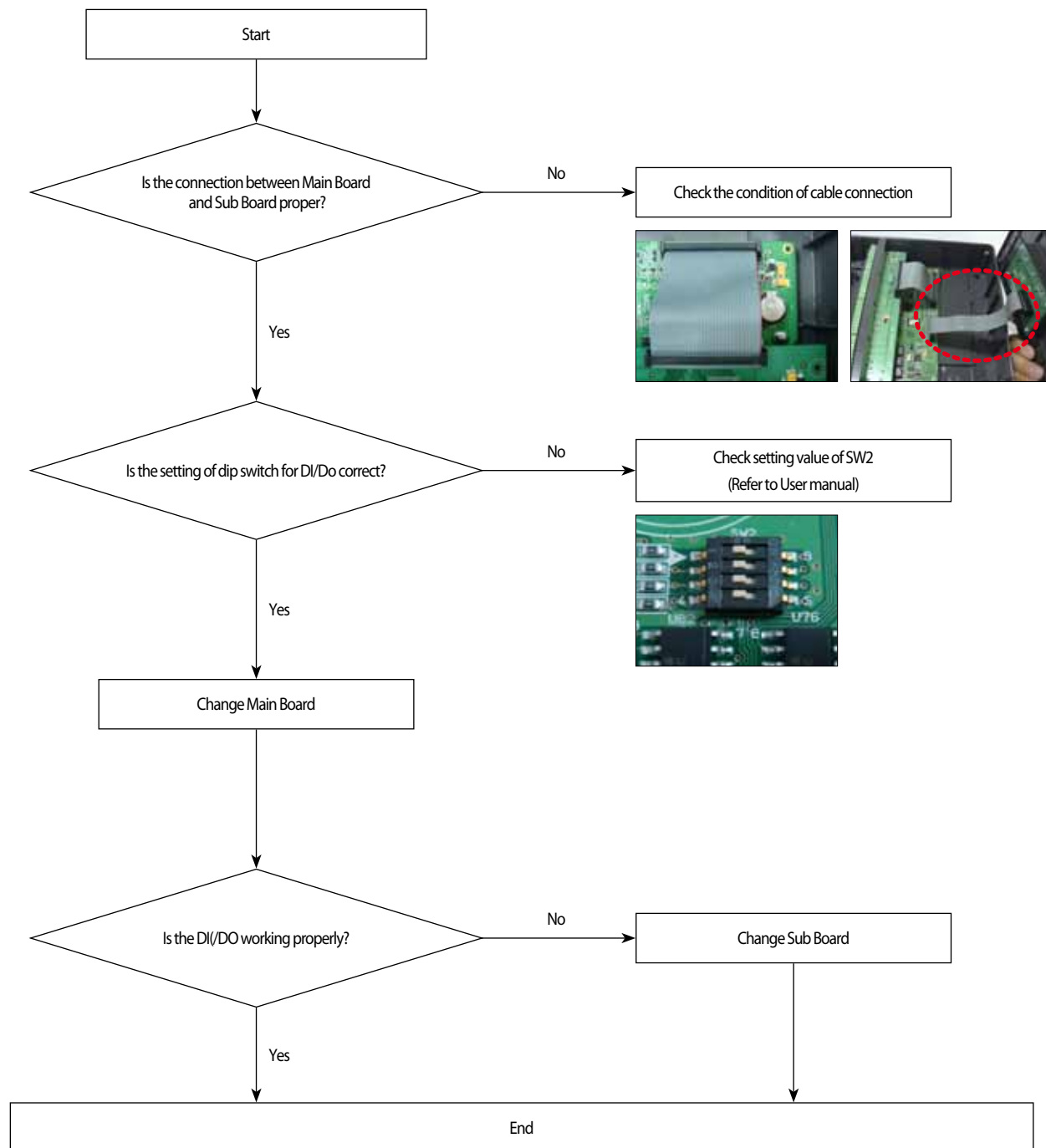


5-2-7. When the Button is Not Working

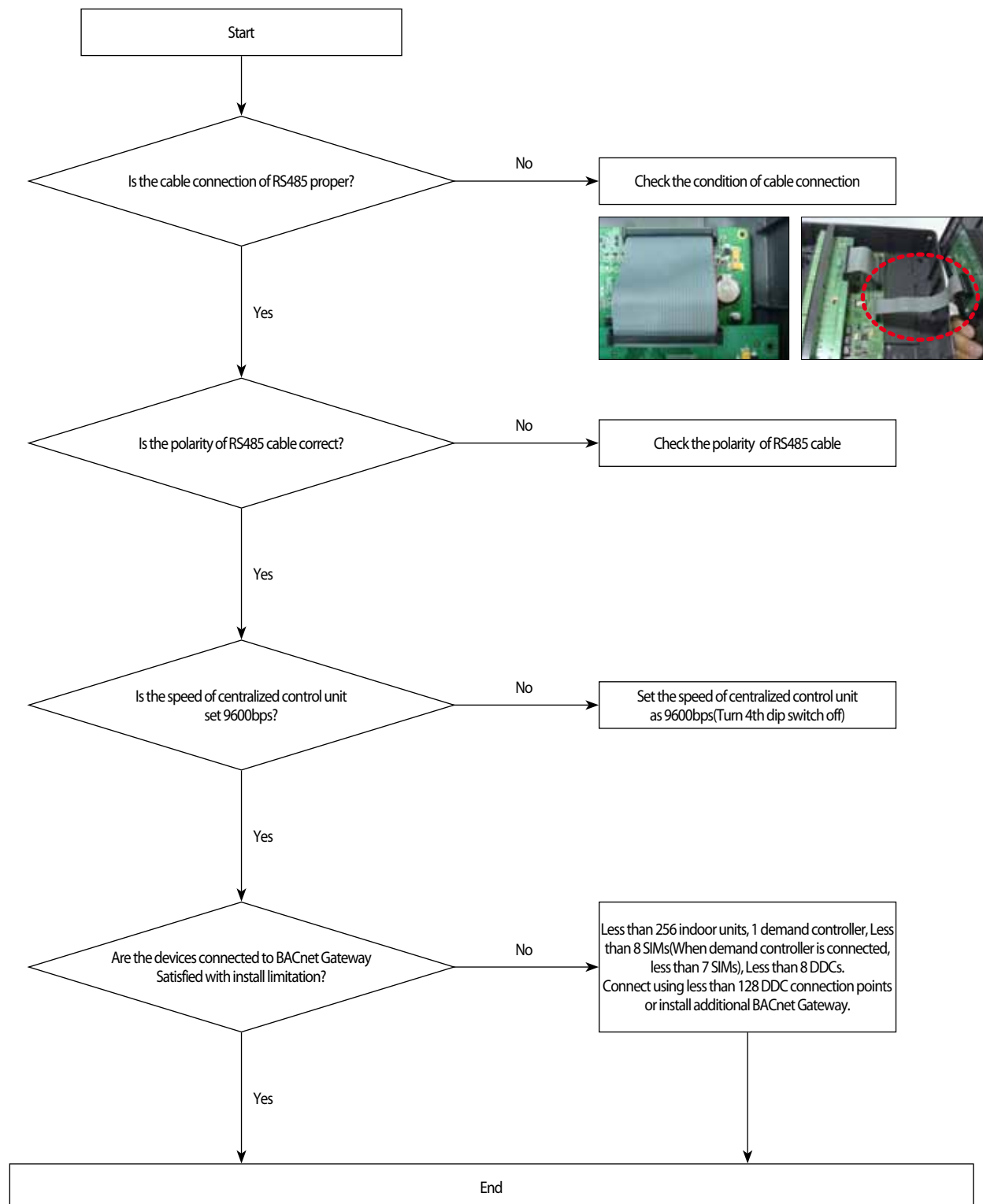




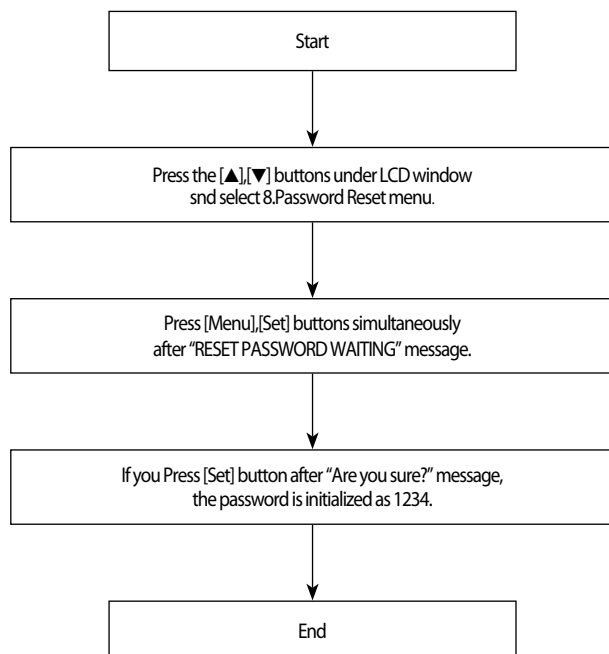
5-2-8. When the DI/Do is Not Working



5-2-9. Action when the Tracking Error



5-2-10. Initialization Way when Admin Password is forgotten

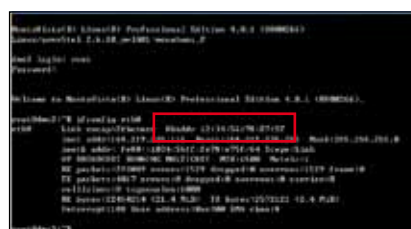
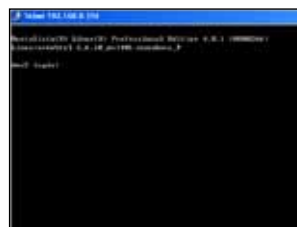
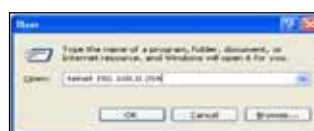
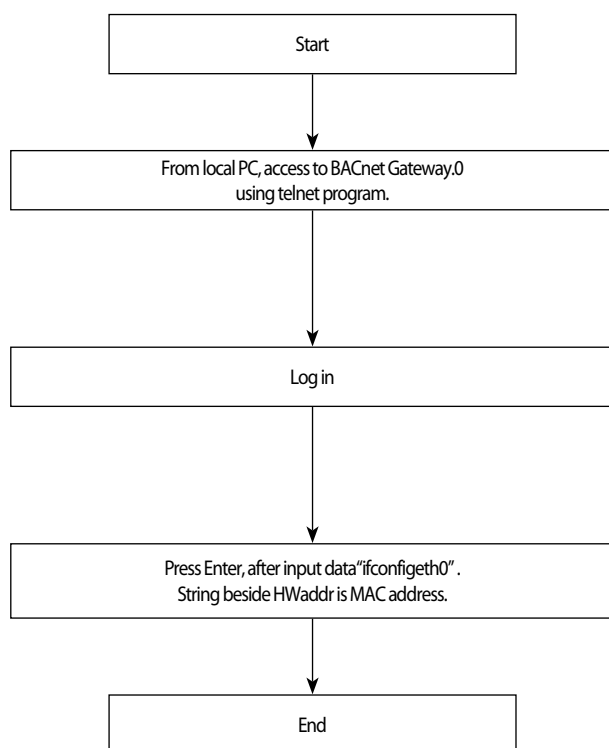


RESET PASSWORD
WAITING.....

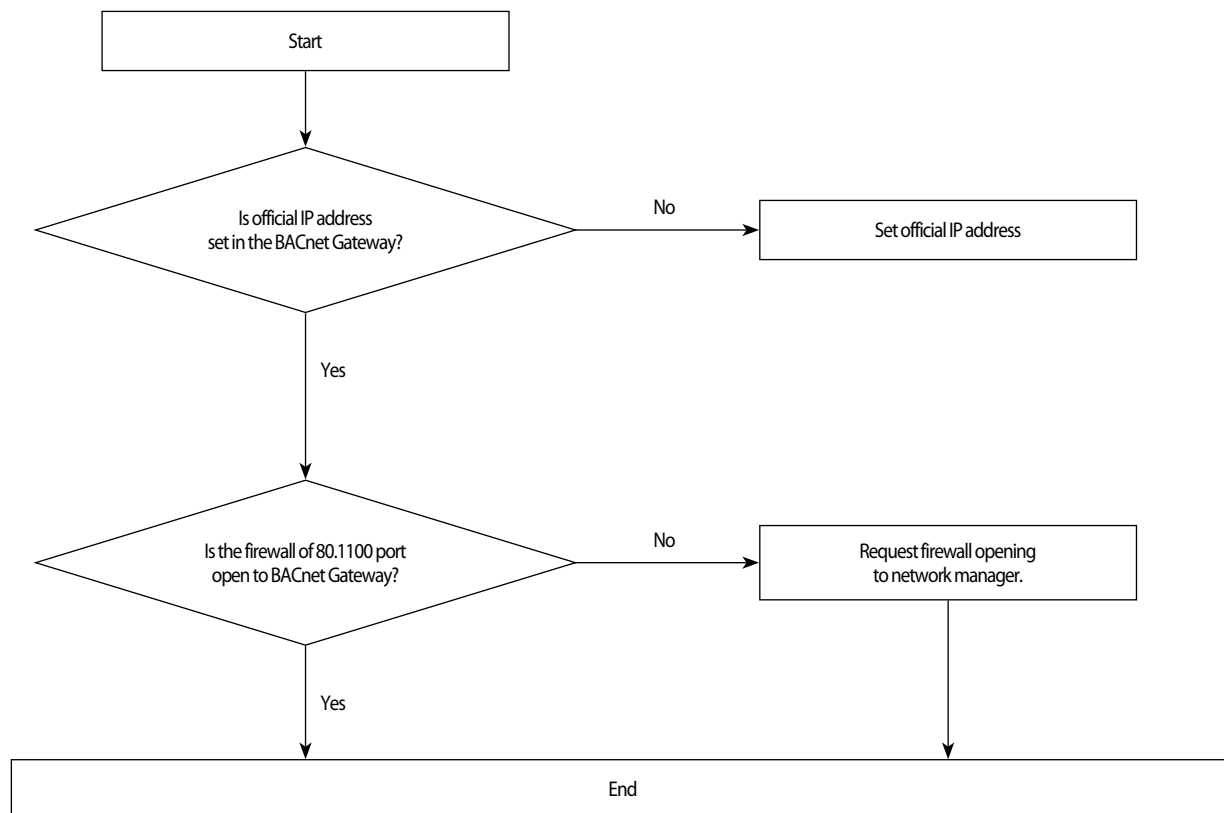
RESET PASSWORD
WAITING.....

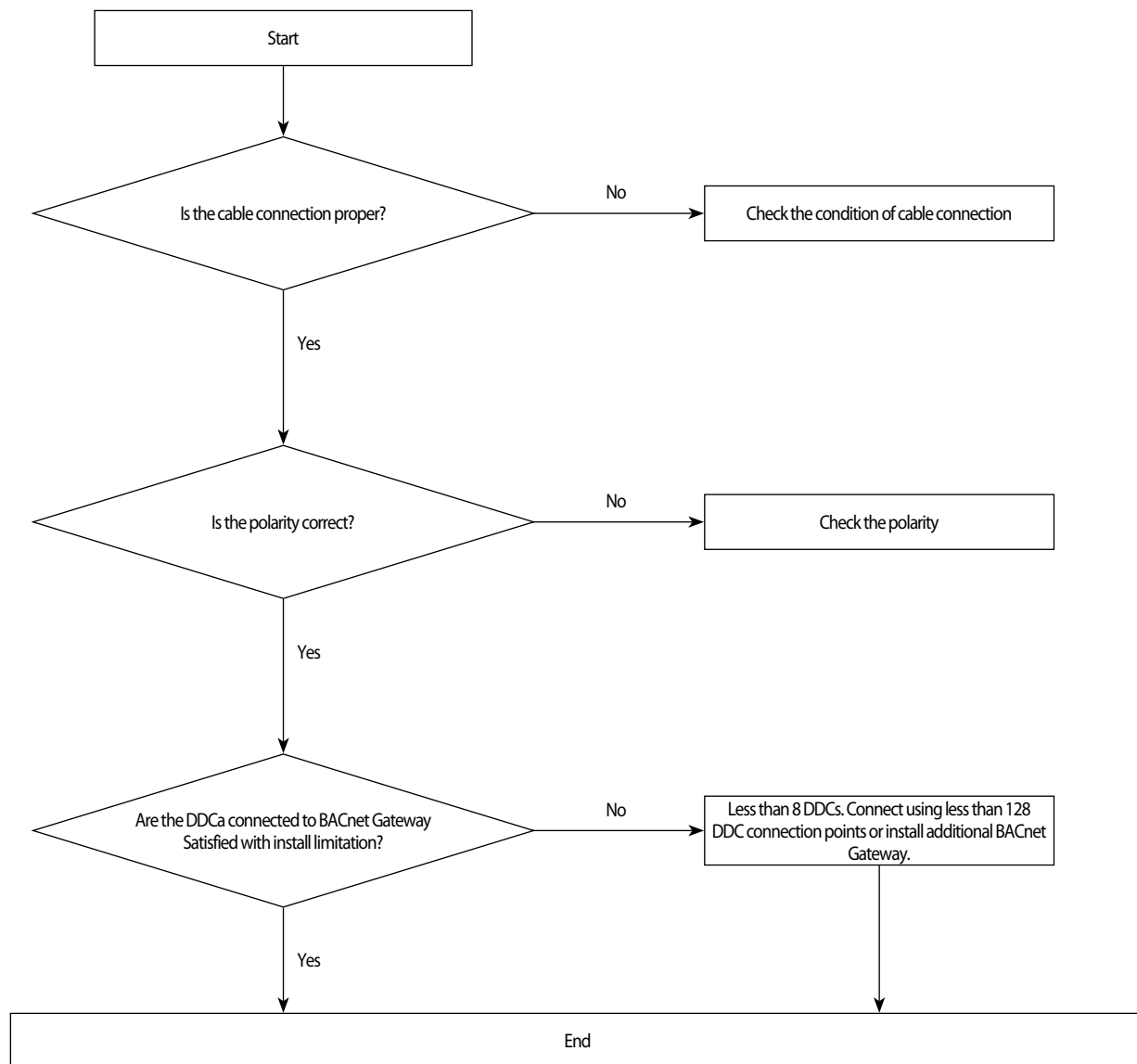
Are you sure?
YES:Set, NO:Menu

5-2-11. How to know MAC address

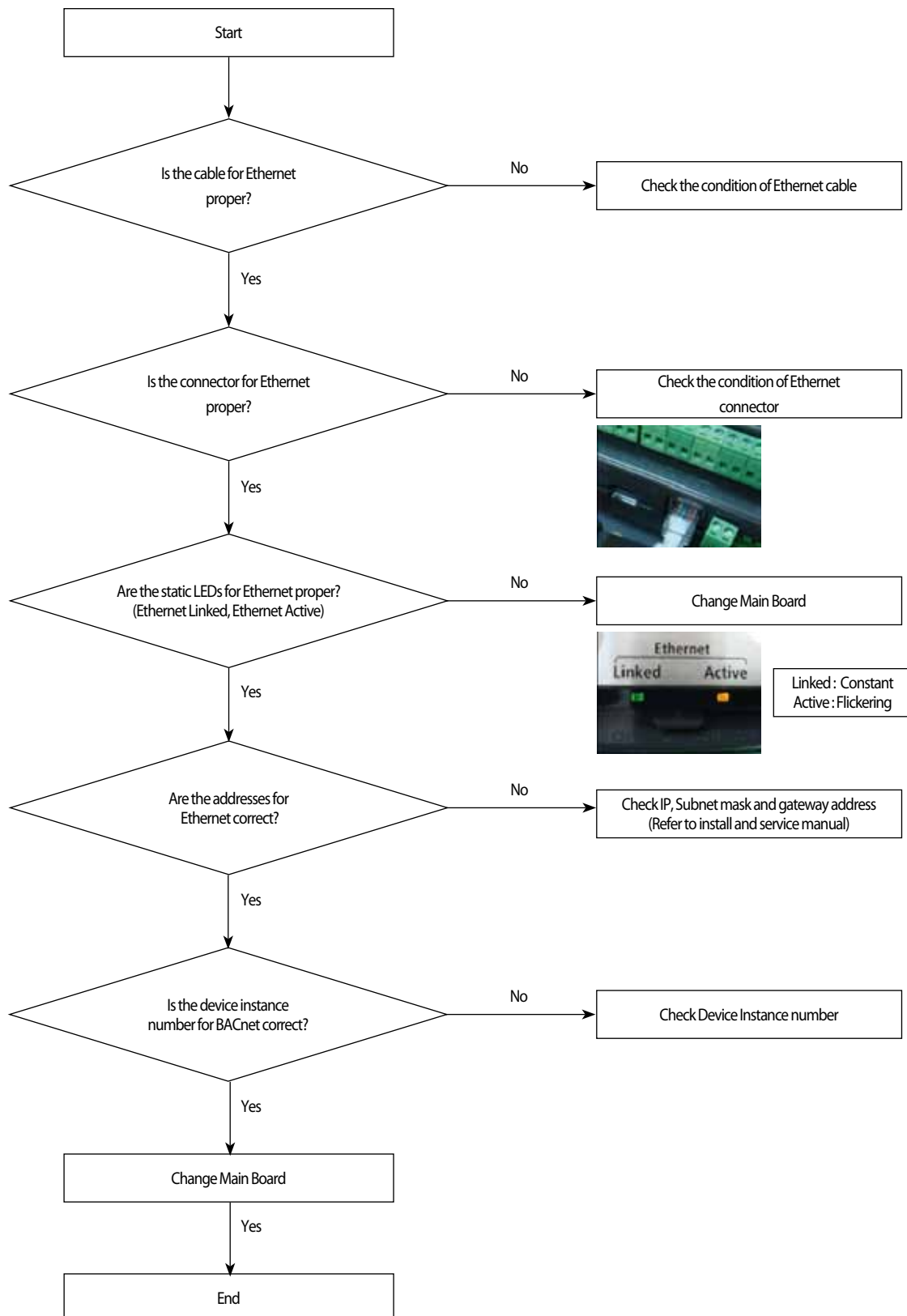


5-2-12.If the connection to BACnet Gateway from the outside using internet is not working

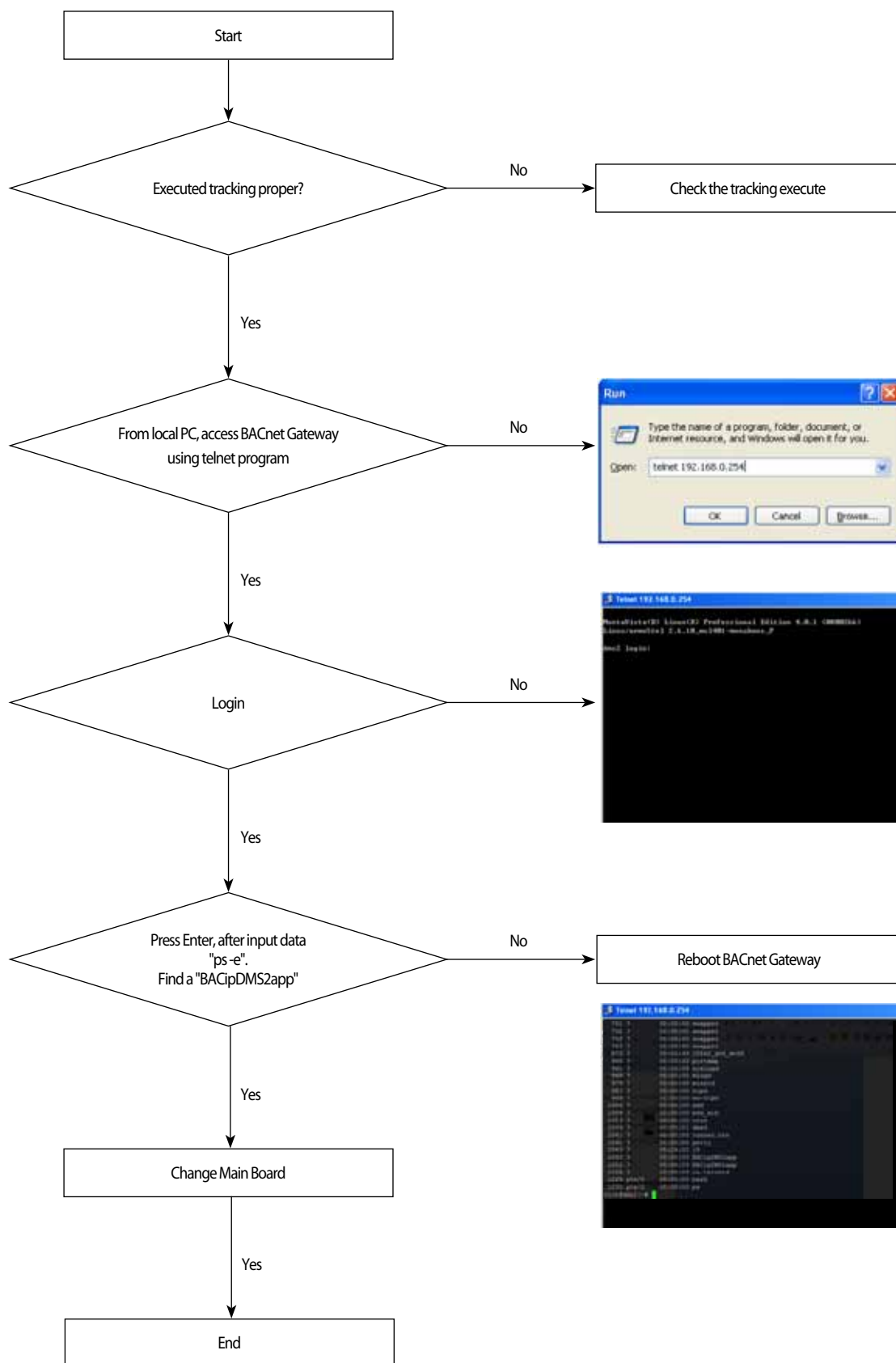


**5-2-13. Solution for DDC connection error**

5-2-14. When the BACnet is Not Connecting

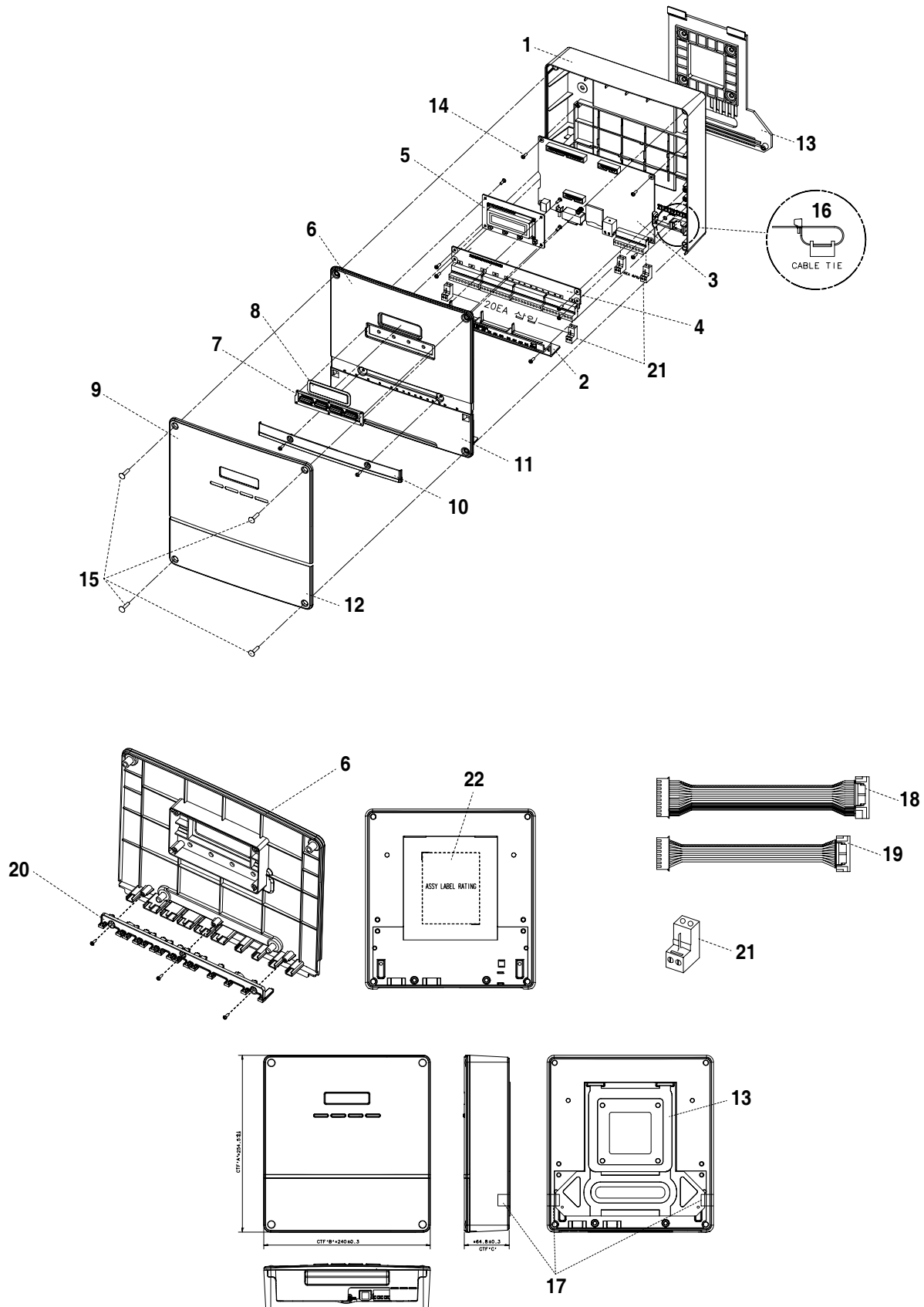


5-2-15. When the BACnet Object Identification Not Display





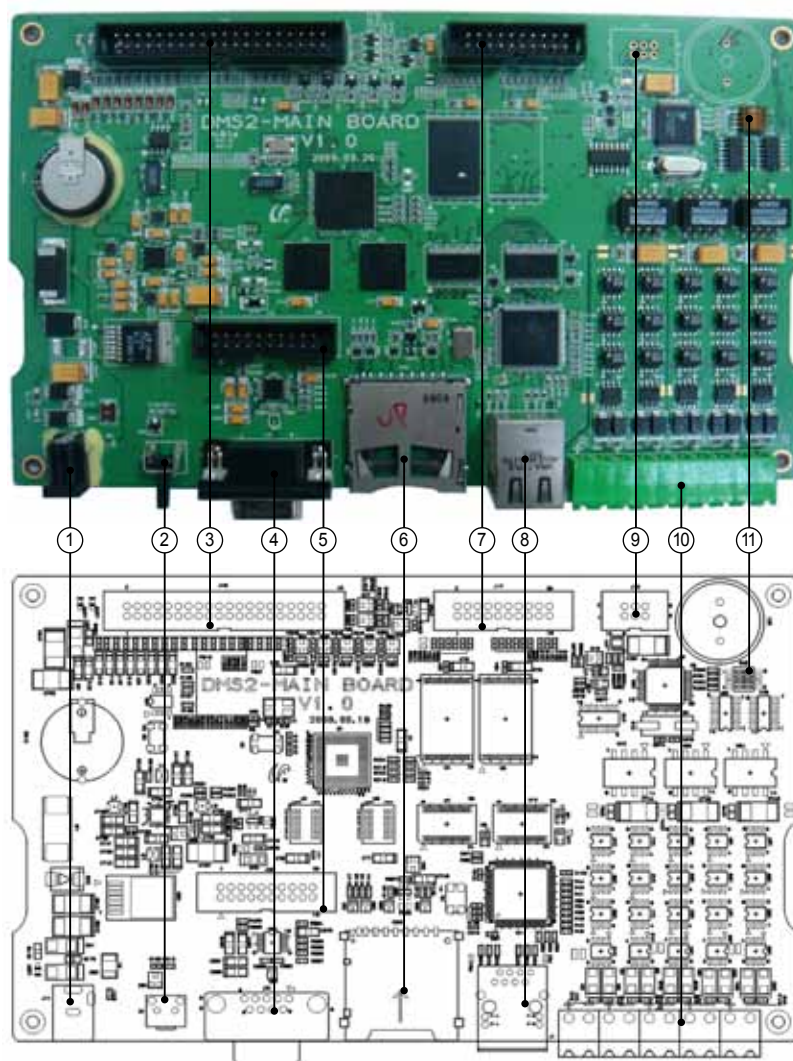
6. Exploded Views and Part List





7. PCB Diagram

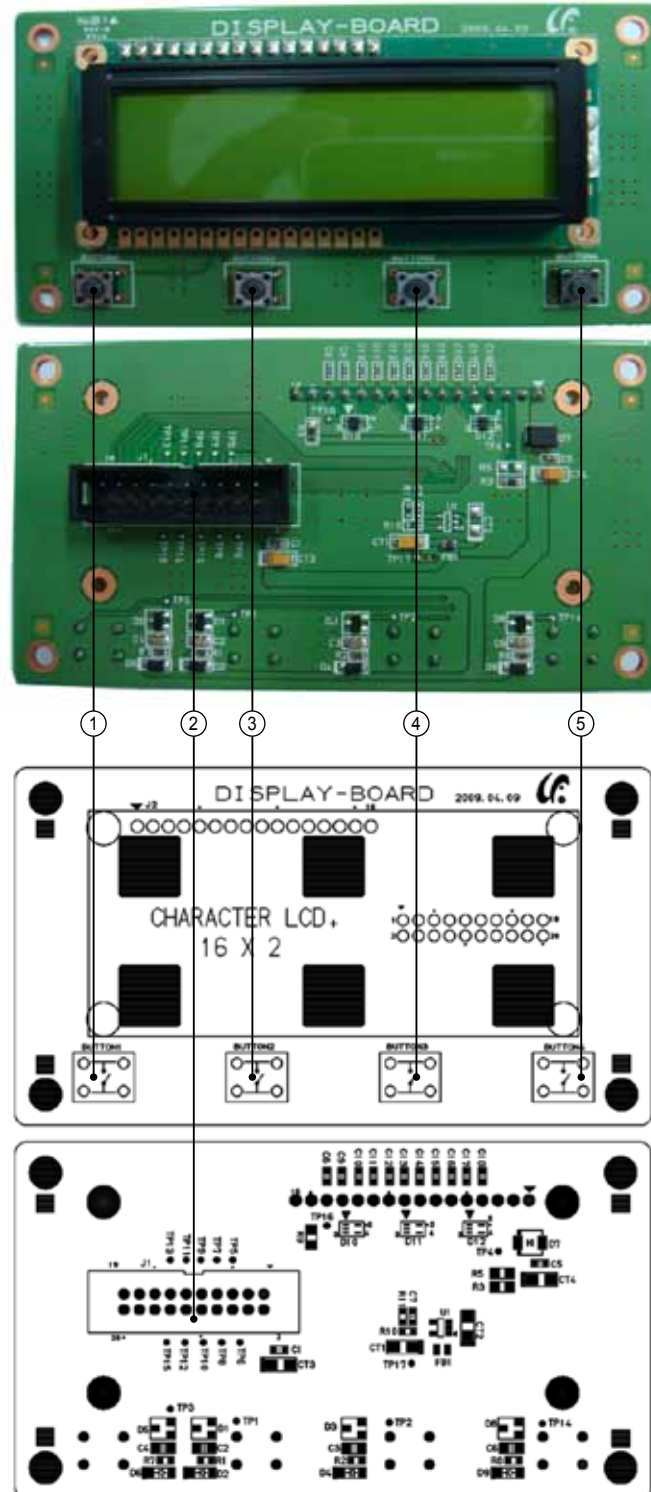
7-1. Main Board



| | | | |
|---|---|--|---|
| ① J11: Power connector #1: GND #2: Not used #3: DC 12V #4: DC 12V | ② S2: Reset SW #1: GND #2: Reset signal | ③ J18: Main_Sub Connector #1: DC 12V #2: DC 12V #3,4: GND #5~#14: DL_S1~10 signal #15~#24: DL_S1~10 signal #25: DC3.3V #26: CPU_ALIVE #27: GND #28: ETH_ALIVE #29: ETH_LINK #30: ERROR #31~#40: 485_TX LED signal | ④ J21: Connector for Serial Communication #1: Not used #2: TXR #3: RXR #4: Not used #5: GND #6~#9: Not used |
| ⑤ J20: Connector for Debugging #1: DC3.3V #2: DC3.3V #3: nTRST #4: GND #5: TDI #6: GND #7: TMS #8: GND #9: TCK #10~#12: GND #13: TDO #14: GND #15: CPU_nRESET #16: GND #17: Not used #18: GND #19: Not used #20: GND | ⑥ CON1: SD Card Socket #1: SD1_D3 #2: SD1_CMD #3: GND #4: DC3.3V #5: SD1_CLK #6: GND #7: SD1_D0 #8: SD1_D1 #9: SD1_D2 #10: SD1_nCD #11: GND #12: SD1_WP | ⑦ J17: Connector for Displaying #1: VCC_SUB_A(DC5V) #2: VCC_SUB_A(DC5V) #3: GND #4: GND #5: CLCD_RS #6: CLCD_RnW #7: CLCD_EN #8~#15: CLCD_DB0~7 #16: GND #17: MENU #18: UP #19: DOWN #20: OK | ⑧ J1: Connector for Ethernet #1: TPO+ #2: TPO- #3: TDC(DC3.3V) #4: Not used #5: TPI+ #6: TPI- #D2: ETHERNET_LINK #D1: DC3.3V(Pullup 24.9 ohm) #D4: ETHERNET_ALIVE #D3: DC3.3V(Pullup 24.9 ohm) |
| ⑨ J19: Connector for Reset #1: MISO #2: VCC_5V #3: SCK #4: MOSI #5: nISP_RESET #6: GND | ⑩ CN10: Connector for RS485 #1(+): 485 Ch1 A #2(-): 485 Ch1 B #3(+): 485 Ch2 A #4(-): 485 Ch2 B #5(+): 485 Ch3 A #6(-): 485 Ch3 B #7(+): 485 Ch4 A #8(-): 485 Ch4 B #9(+): 485 Ch5 A #10(-): 485 Ch5 B | ⑪ SW2: Mode Select Switch #1: MODE_SEL1 #2: MODE_SEL2 #3: MODE_SEL3 #4: MODE_SEL4 #5~#8: GND(Pulldown 330ohm) | |



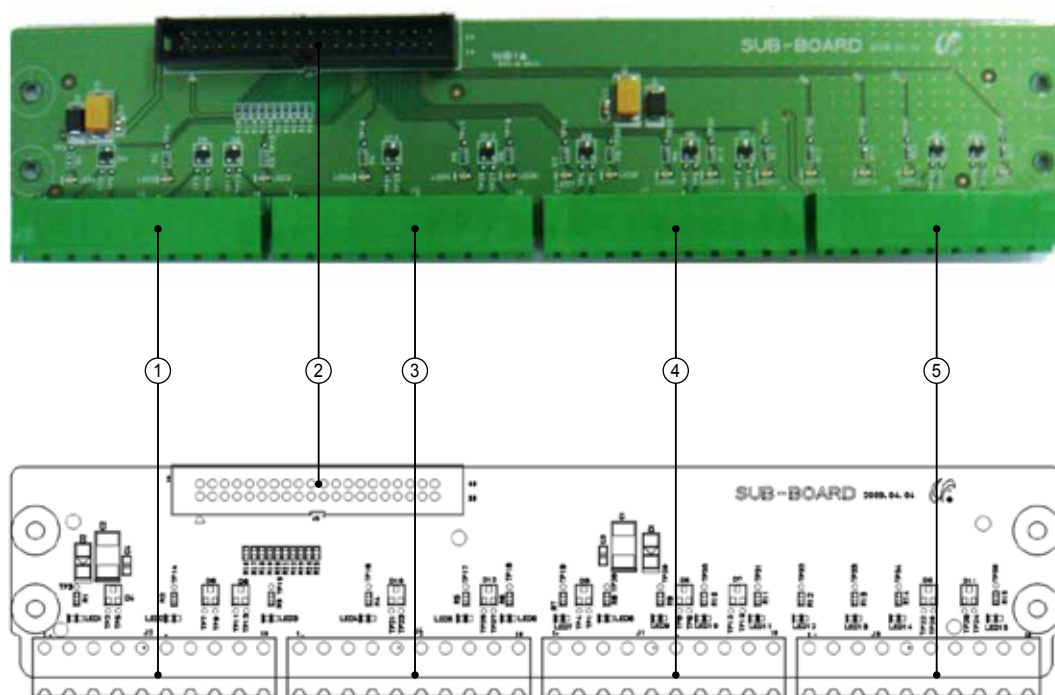
7-2. Display Board



| | | | | |
|--|--|---|---|---|
| <p>① Button1 : Menu Button #1: GND #2: B_Menu</p> | <p>② J1: Connector for Displaying #1~#2: DC15V #3~#4, #16: GND #5~#15: CLCD signal #17~#20: Button signal</p> | <p>③ Button2: Down Button #1: GND #2: B_Down</p> | <p>④ Button3: Up Button #1: GND #2: B_Up</p> | <p>⑤ Button4: OK Button #1: GND #2: B_OK</p> |
|--|--|---|---|---|

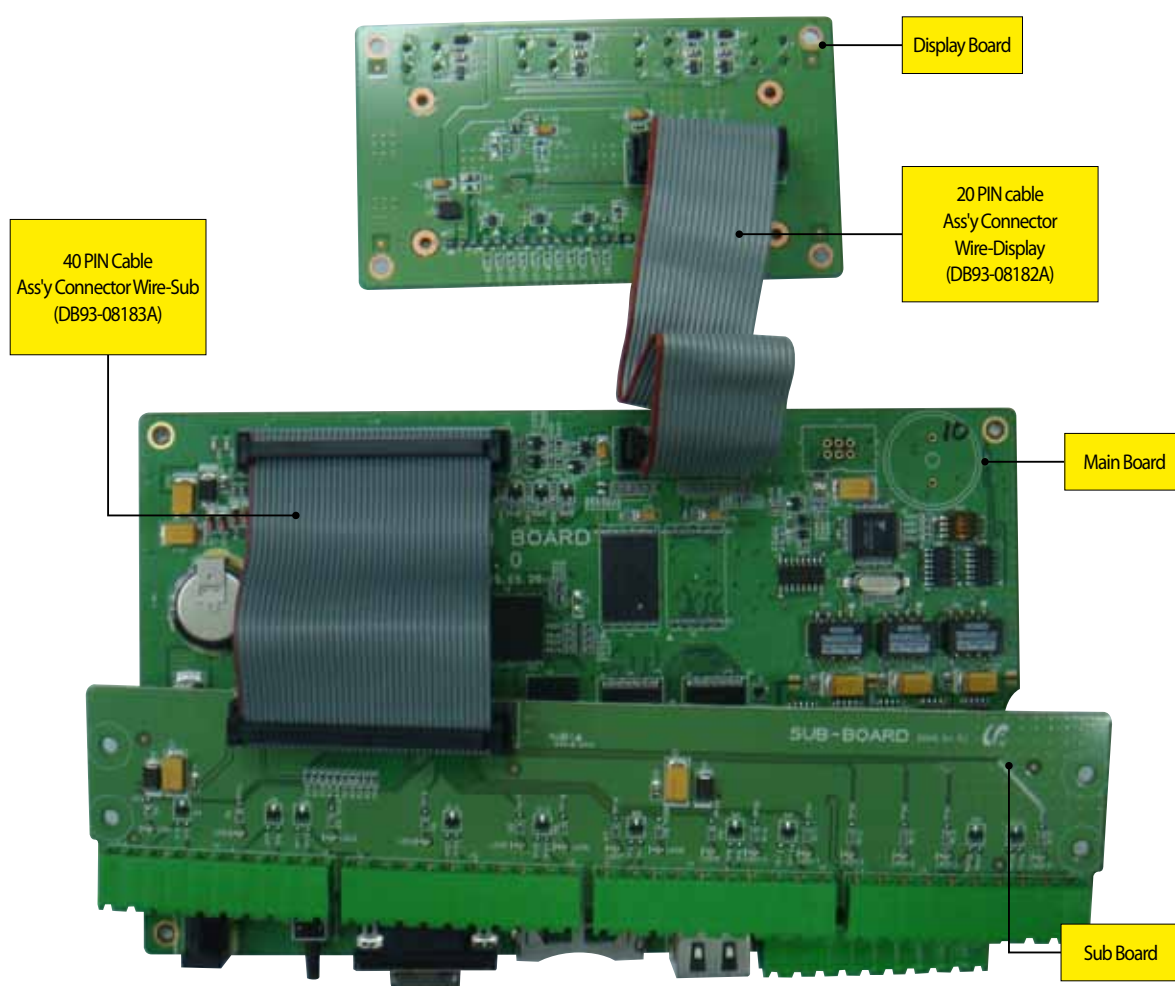


7-3. Sub Board



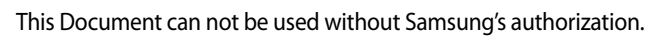
| | | | |
|---|---|--|--|
| <p>① J2 : Digital Input Connector #1,#3,#5,#7,#8: DC12V #2,#4,#6,#7,#10: CH1~5 DI signal</p> | <p>② J5 : Main Sub Connector #1, #2: DC12V #3, #4, #27: GND #5~#24: DI signal #25: POWER LED signal #26: CPU_ALIVE LED signal #28: ETH_ALIVE LED signal #29: ETH_LINK LED signal #30: CHECK LED signal #31~#40: 485 TXD, RXD signal</p> | <p>③ J4 : Digital Input Connector #1,#3,#5,#7,#8: DC12V #2,#4,#6,#7,#10: CH6~10 DI signal</p> | <p>④ J1 : Digital Output Connector #1,#3,#5,#7,#8: DC12V #2,#4,#6,#7,#10: CH1~5 DO signal</p> |
| <p>⑤ J3 : Digital Output Connector #1,#3,#5,#7,#8: DC12V #2,#4,#6,#7,#10: CH6~10 DO signal</p> | | | |

8. Wiring Diagram



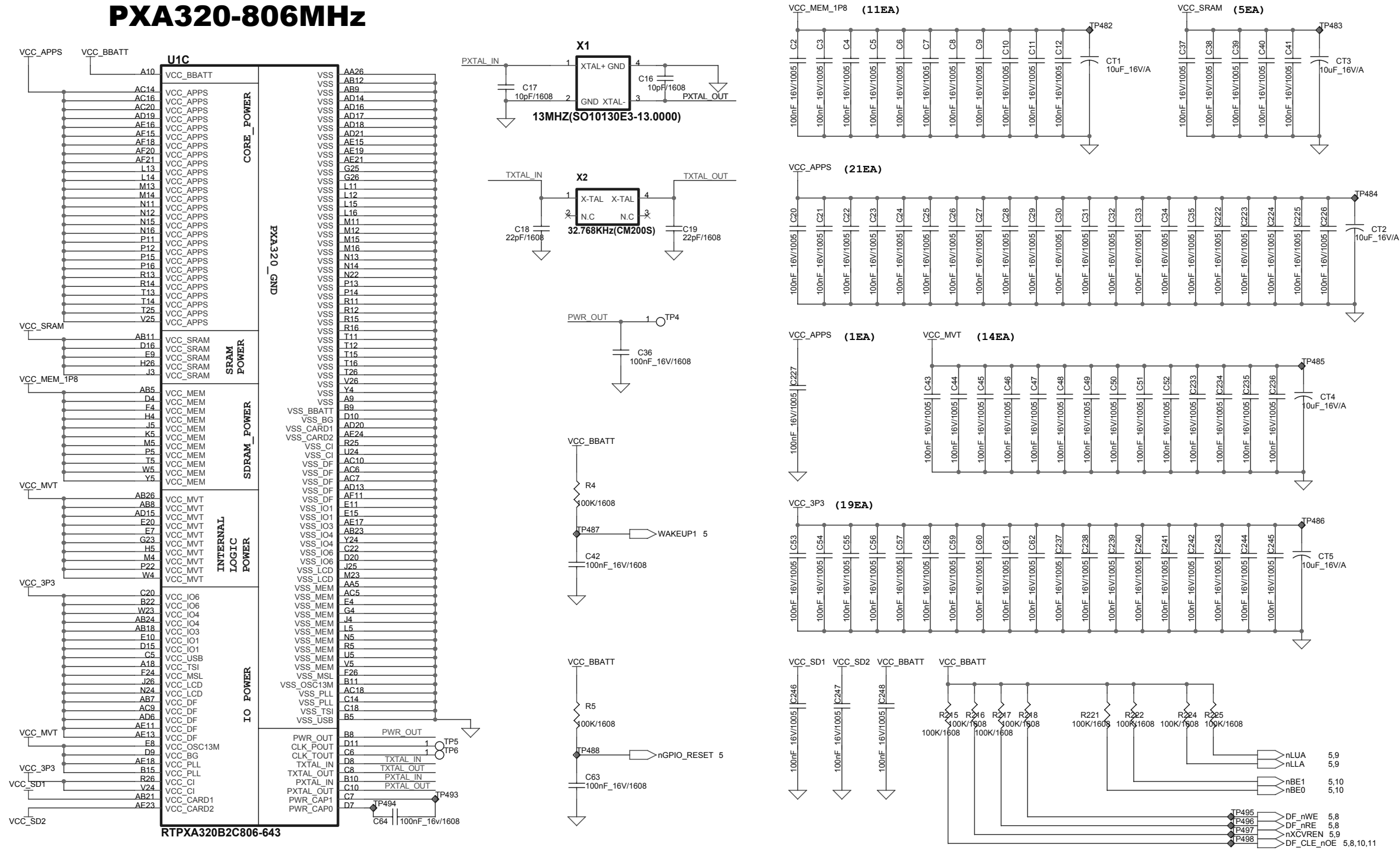
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9-1. Main Board





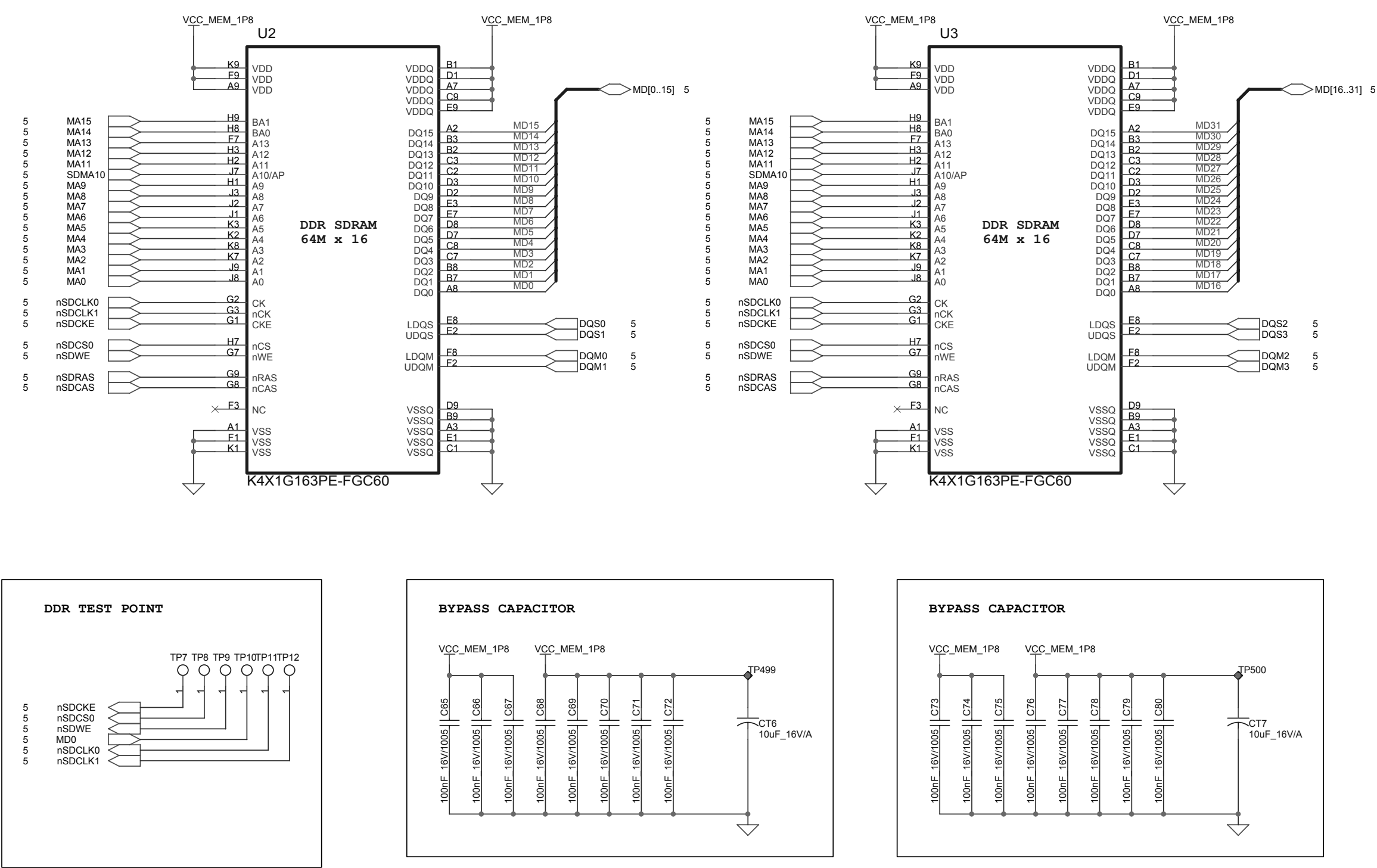
Main Board(cont.)



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Main Board(cont.)

Mobile DDR SDRAM (256MB)

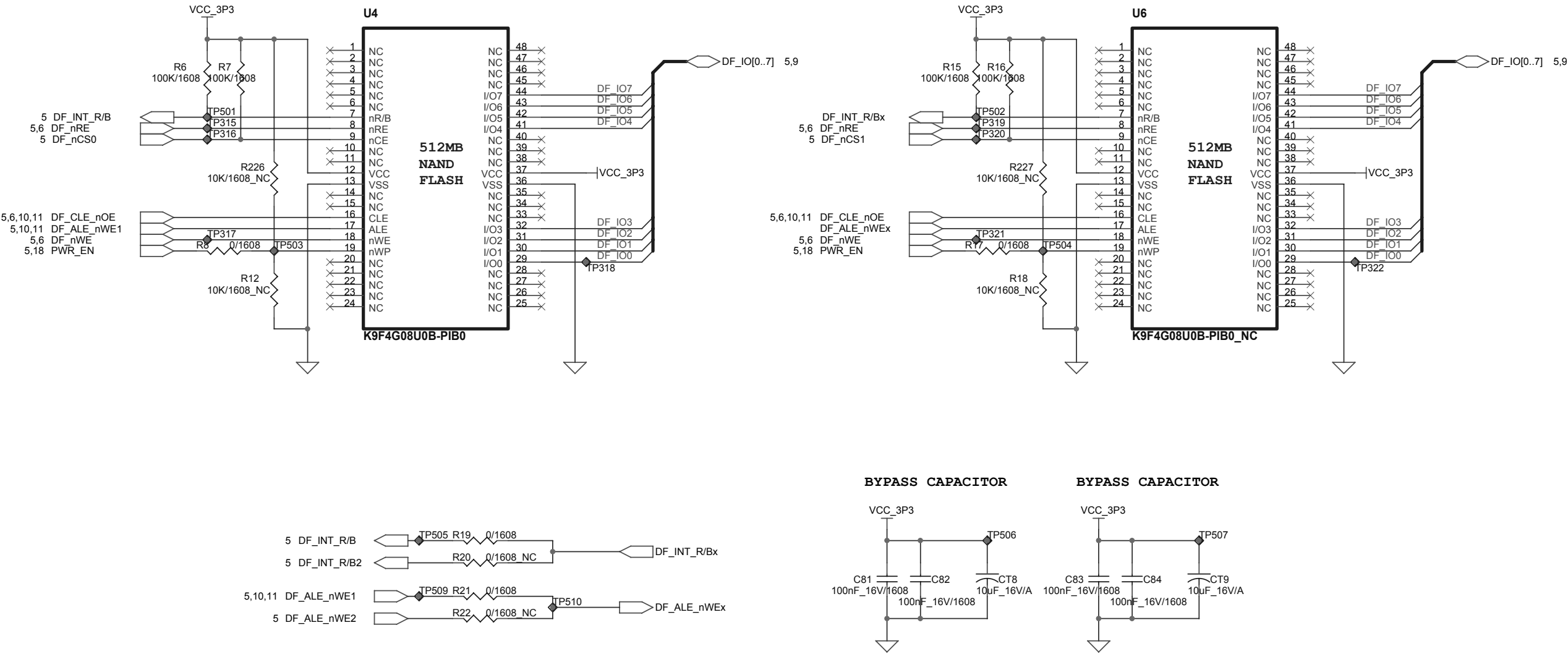


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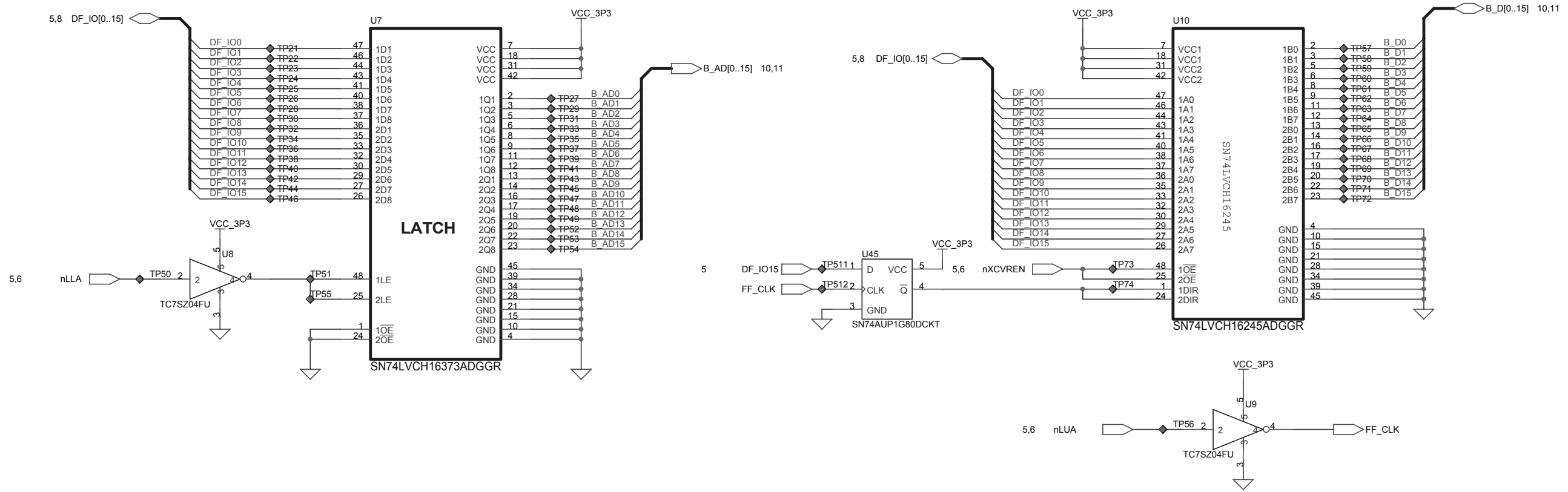
Main Board(cont.)

512MB x 2 NAND FLASH

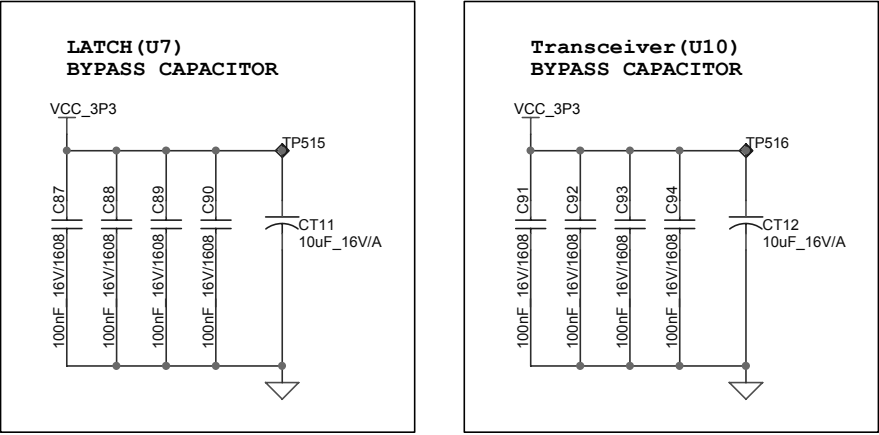
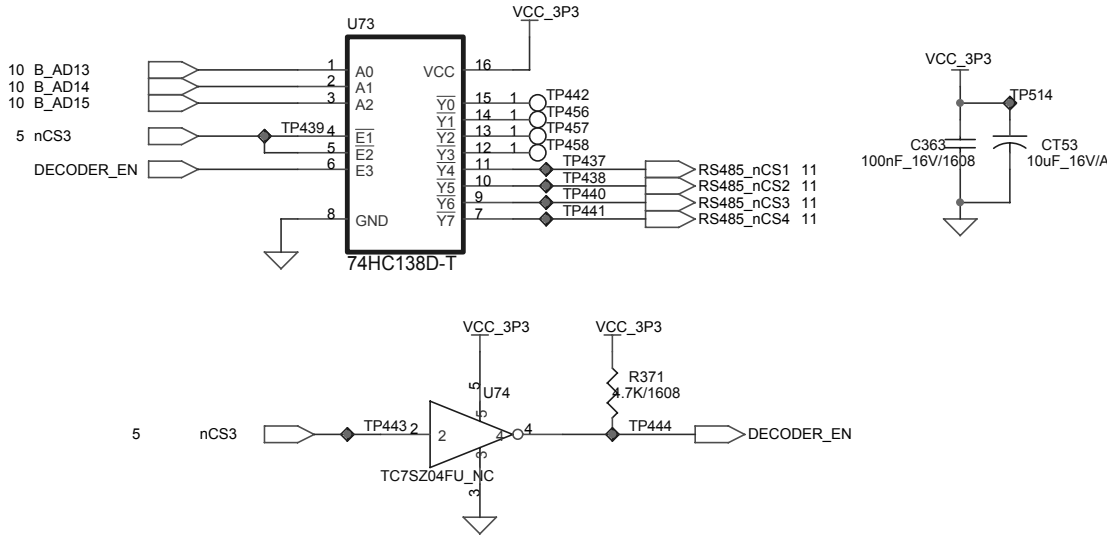


Main Board(cont.)

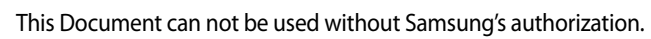
LATCH & TRANSCEIVER for VLIO



CHIP-SELECT DECODER

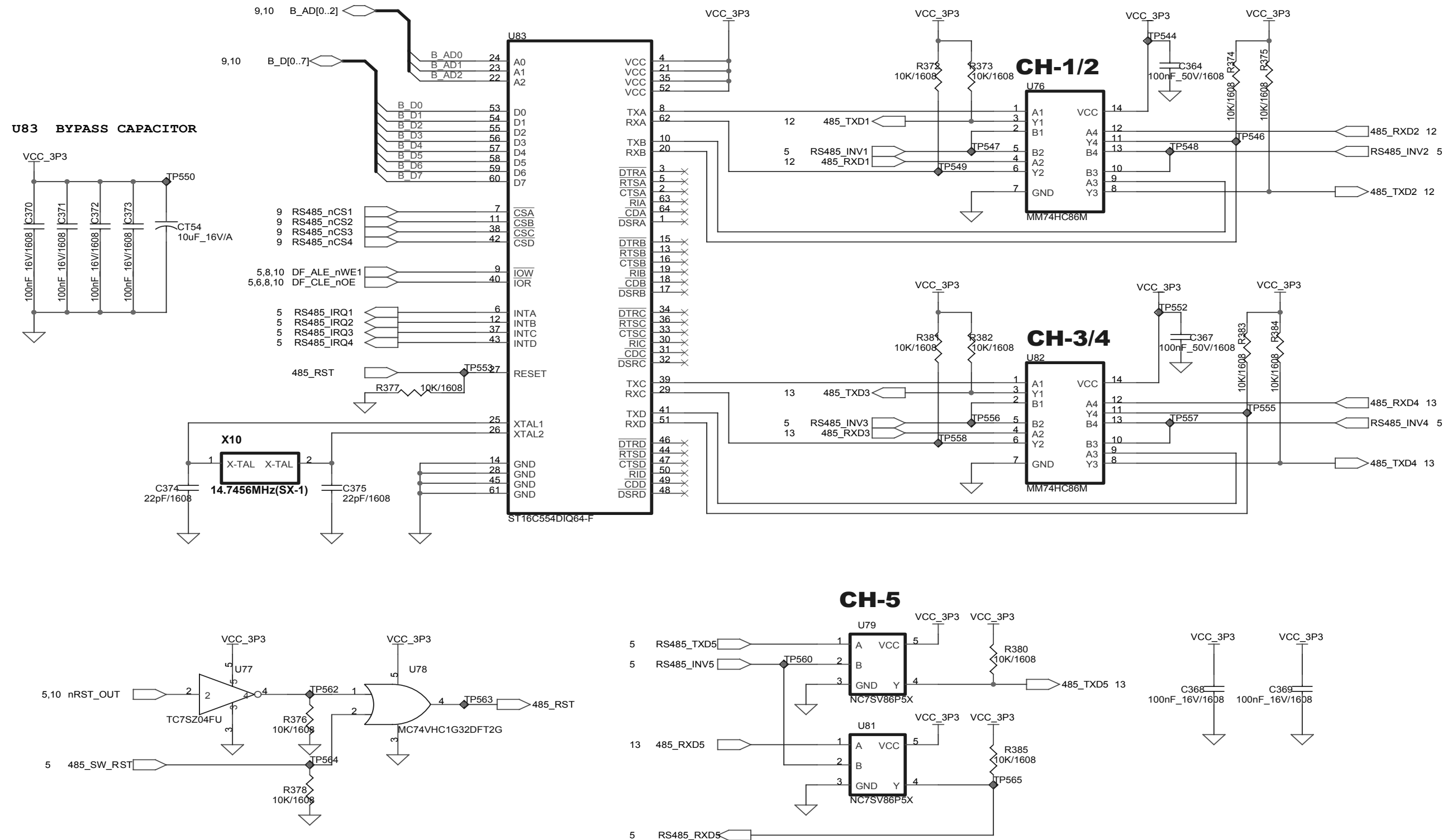


ETHERNET Interface



Main Board(cont.)

RS-485 Channels (1)

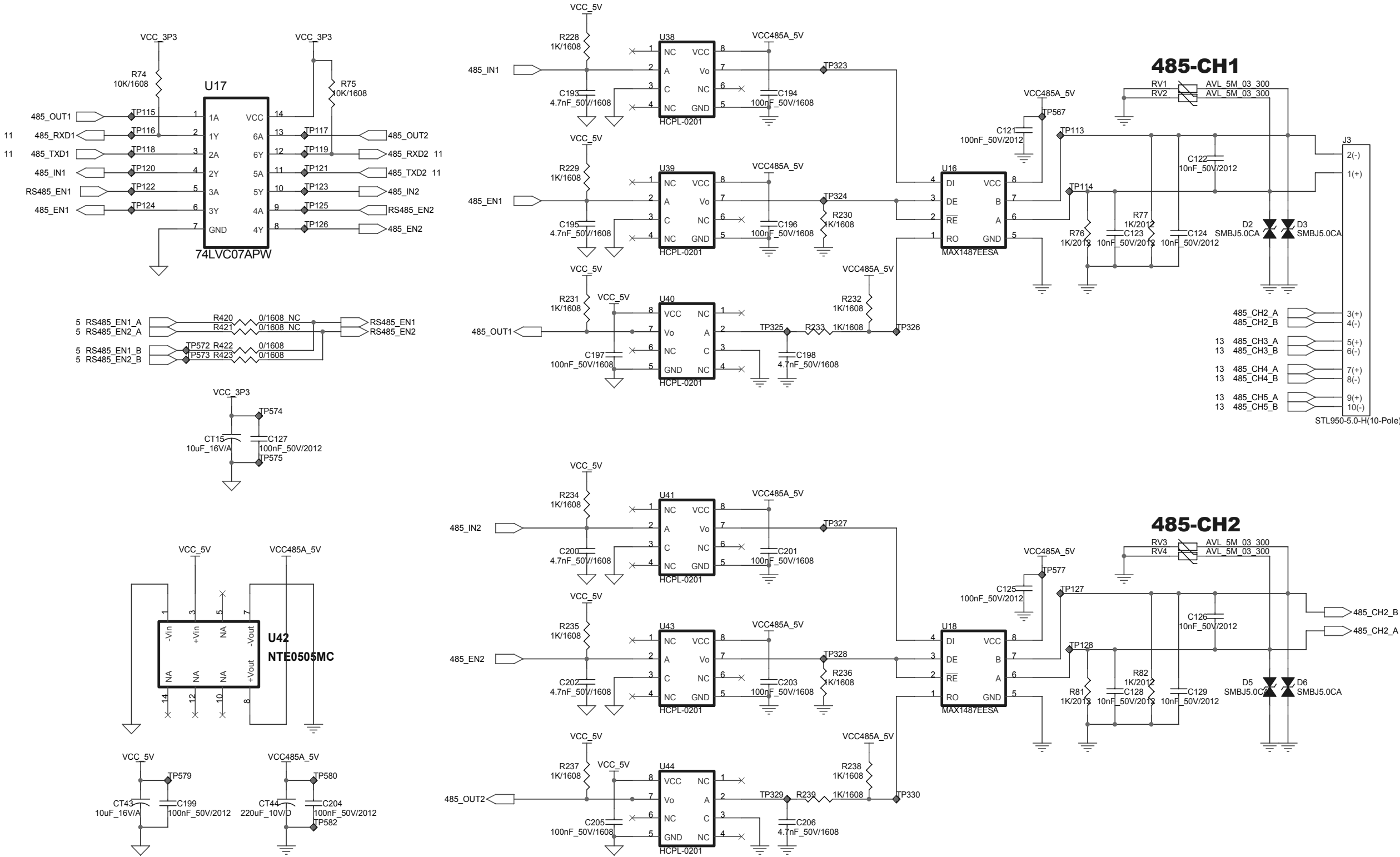


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Main Board(cont.)

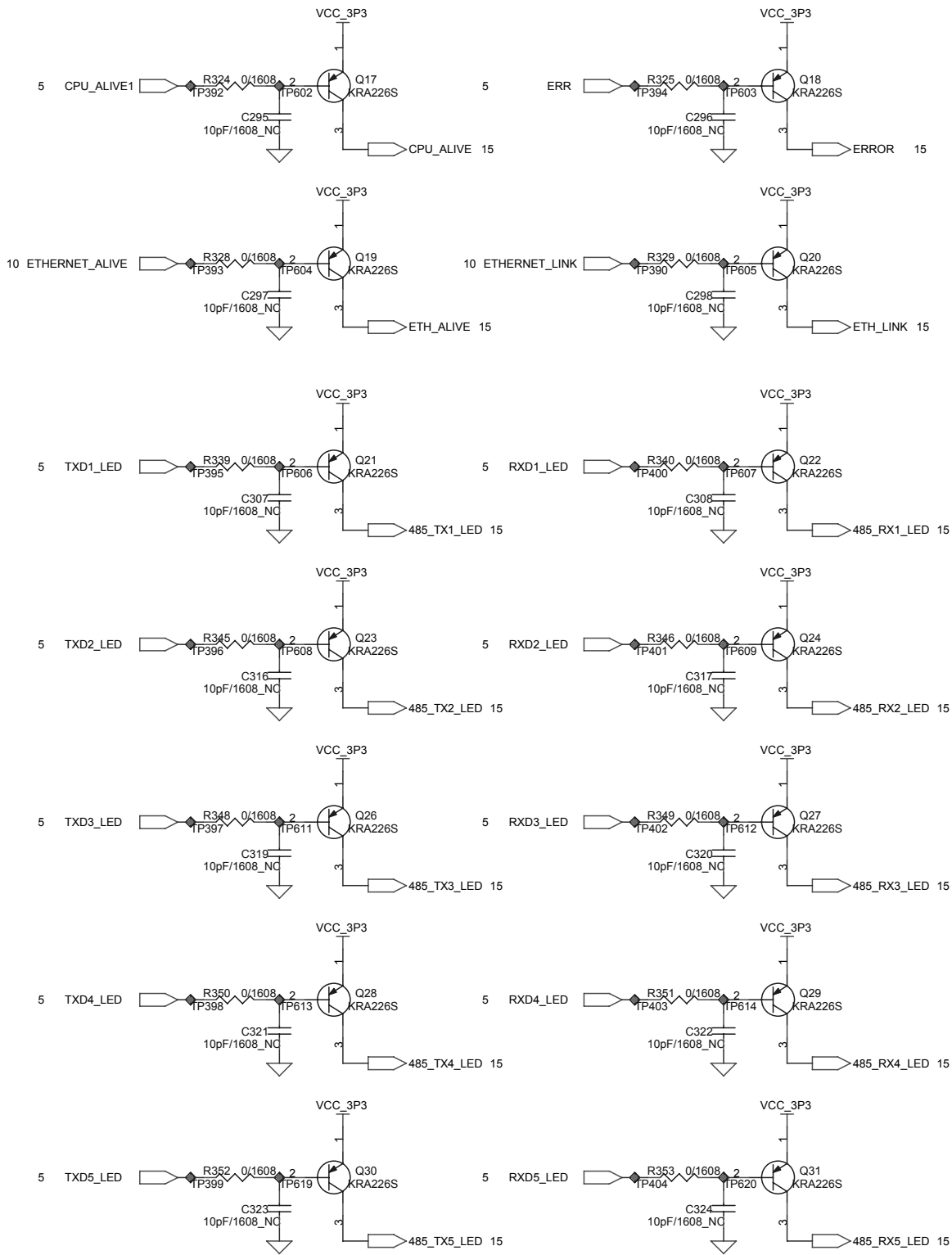
RS-485 Channels (2)



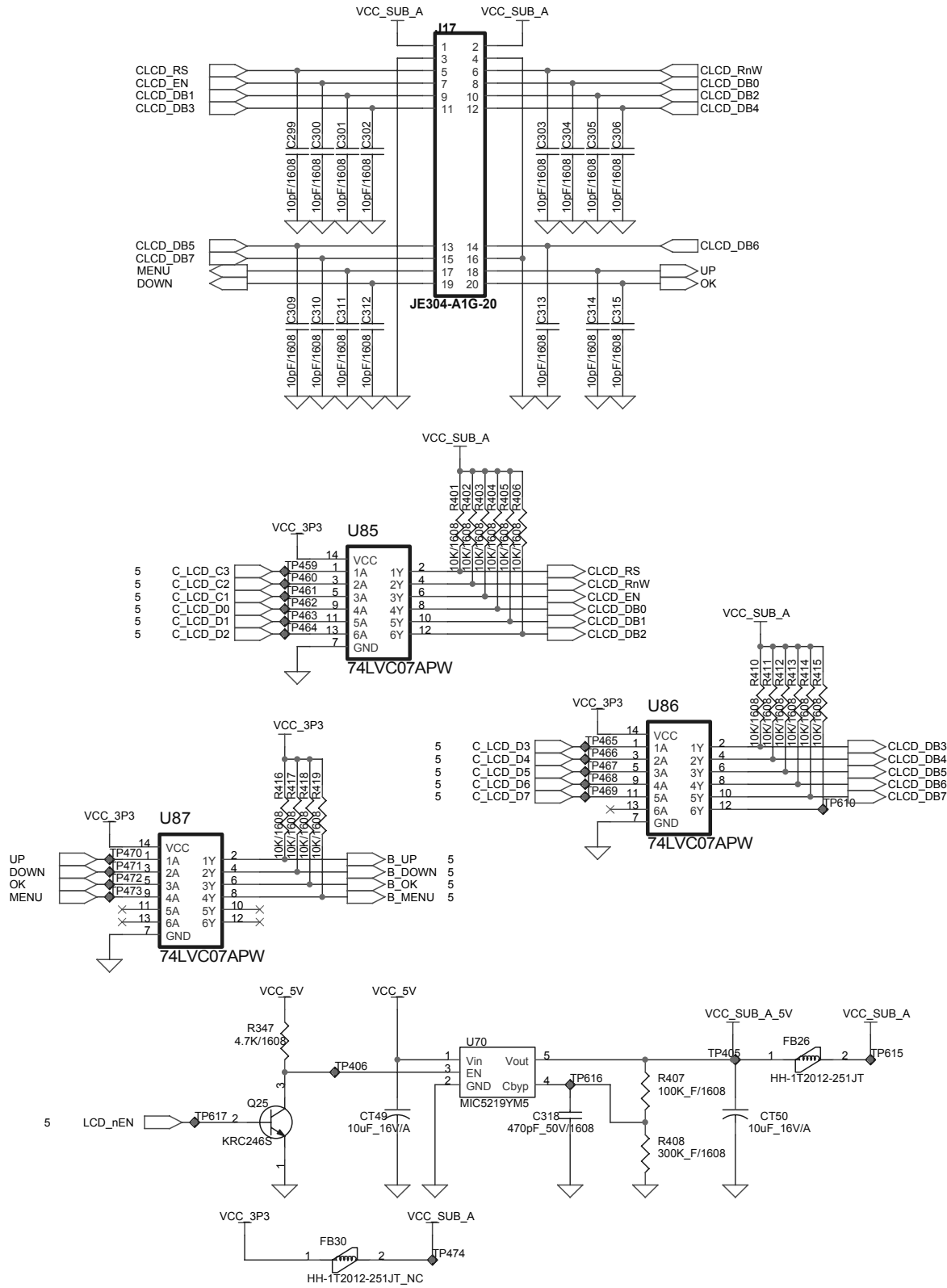


Main Board(cont.)

DESIGN LEDs INTERFACE



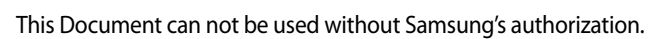
MAIN-DISPLAY CONNECTOR



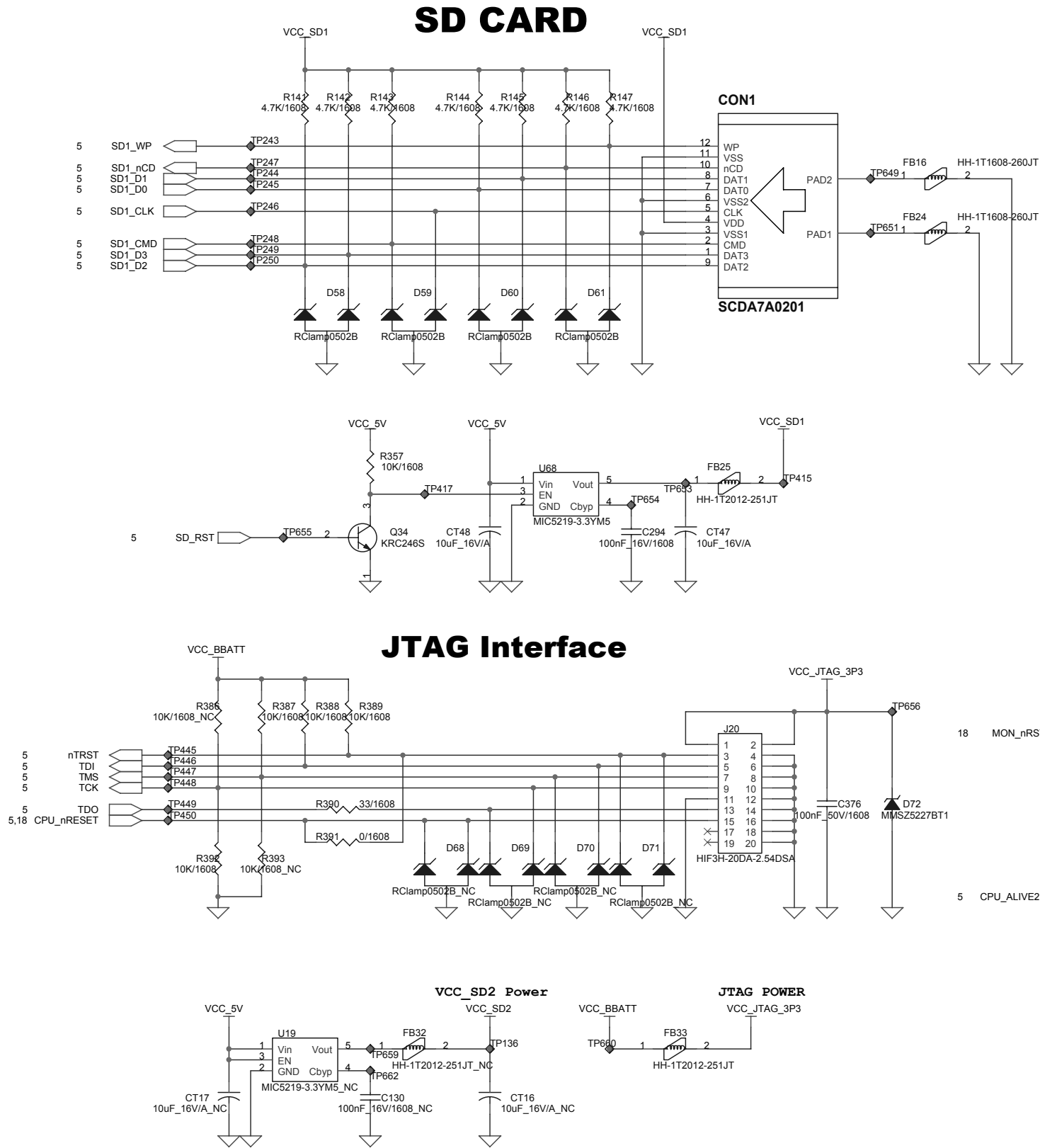


Schematic Diagram

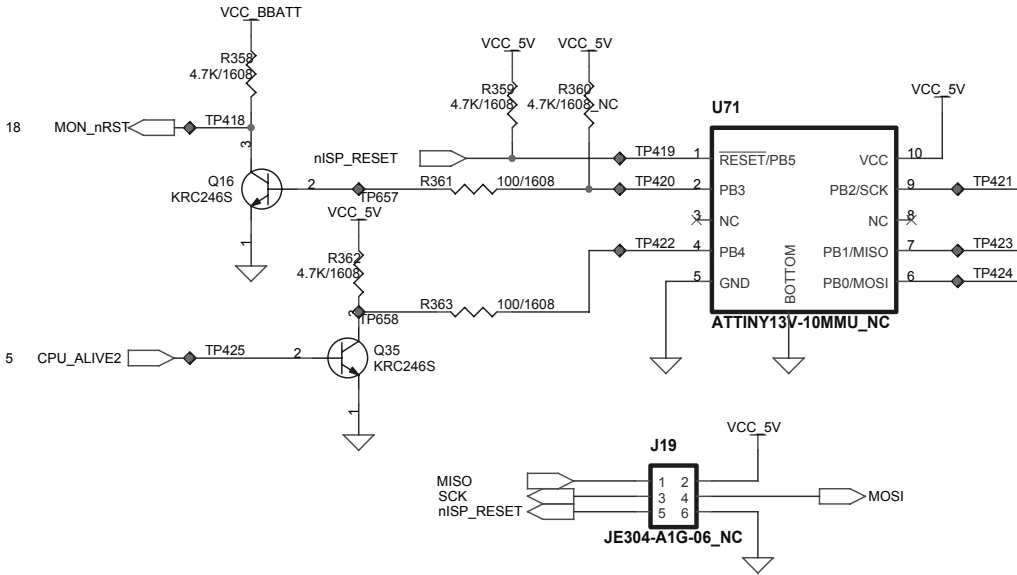
DIGITAL INPUT / DIGITAL OUTPUT INTERFACE



Main Board(cont.)



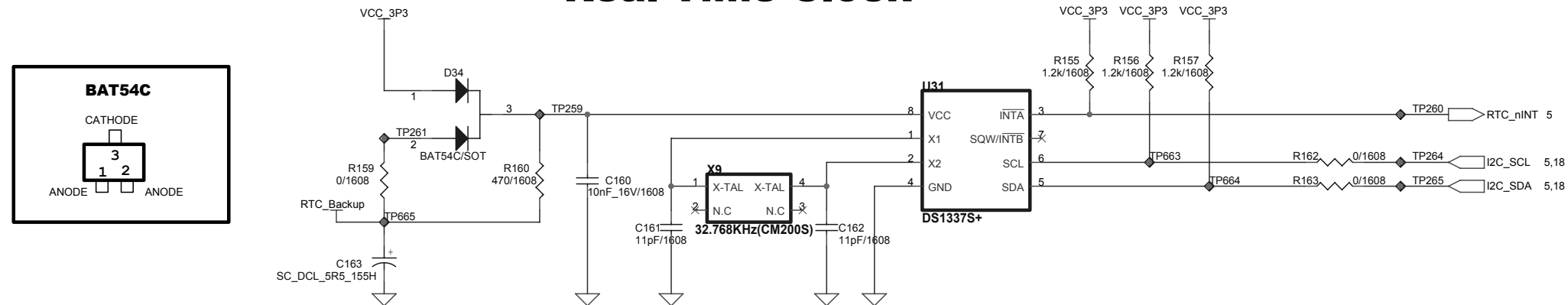
RESET MICOM



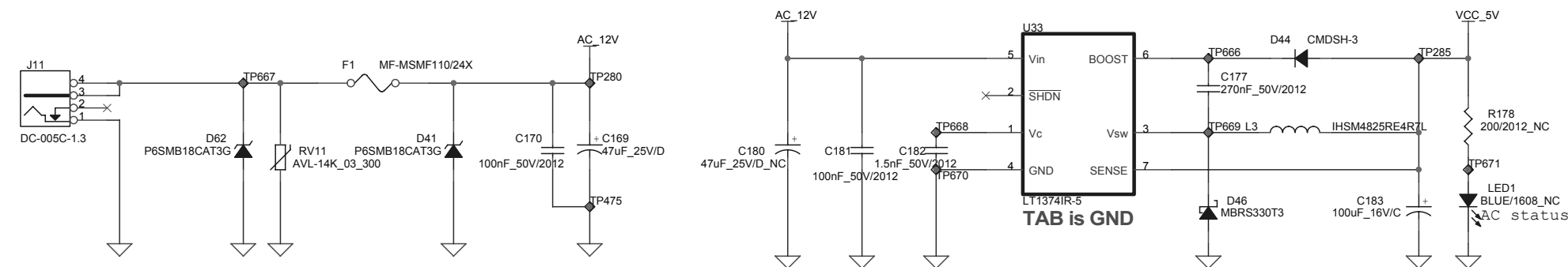


Main Board(cont.)

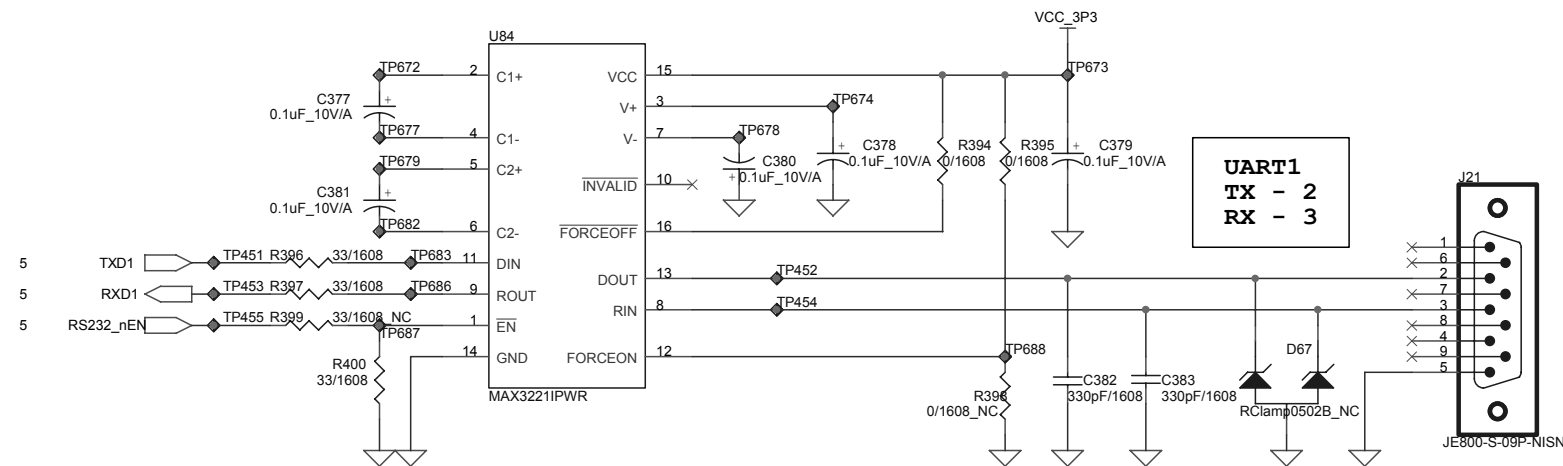
Real Time Clock



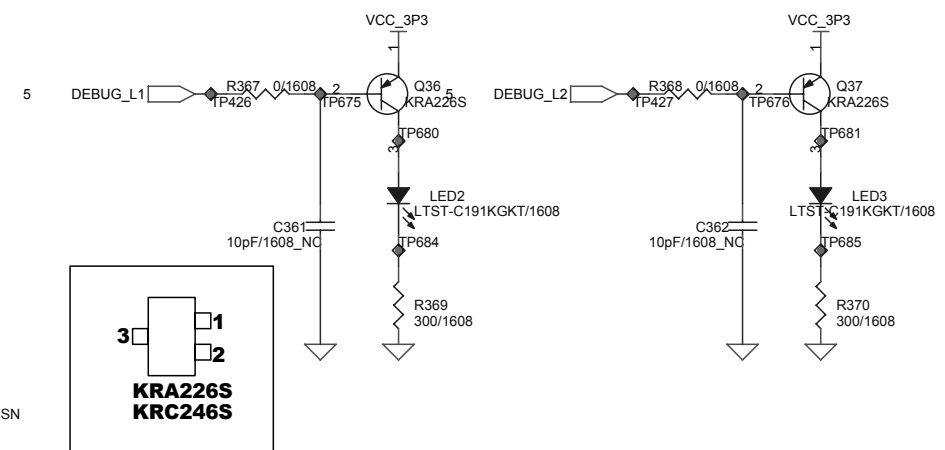
ADAPTOR



RS-232 Interface



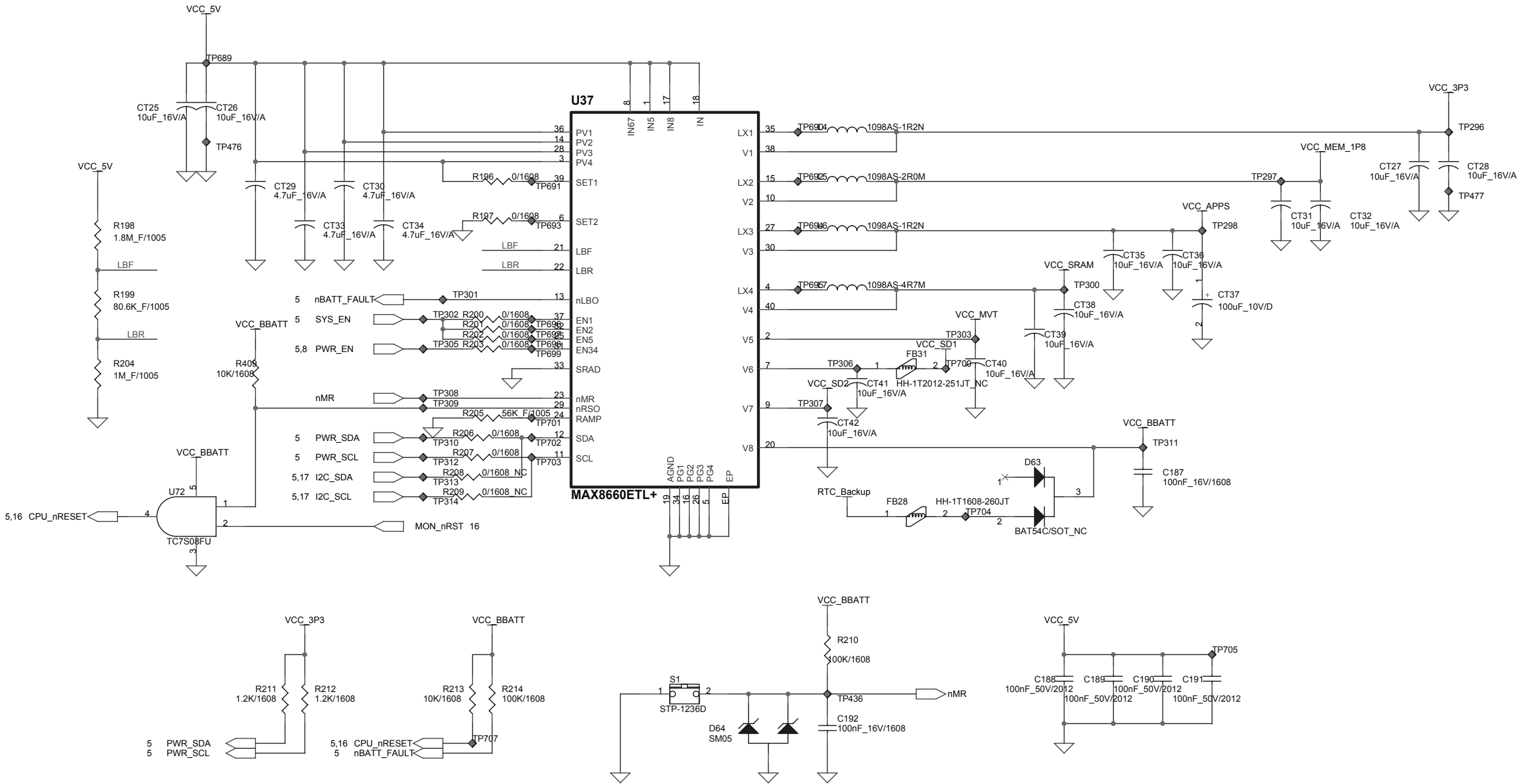
DEBUG LED



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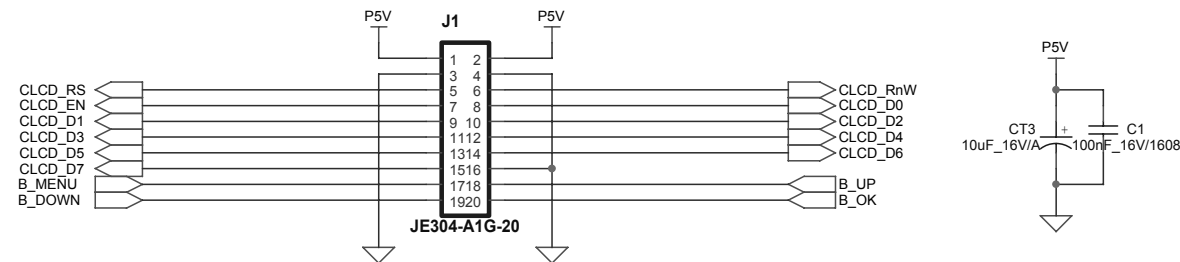
Main Board(cont.)

POWER

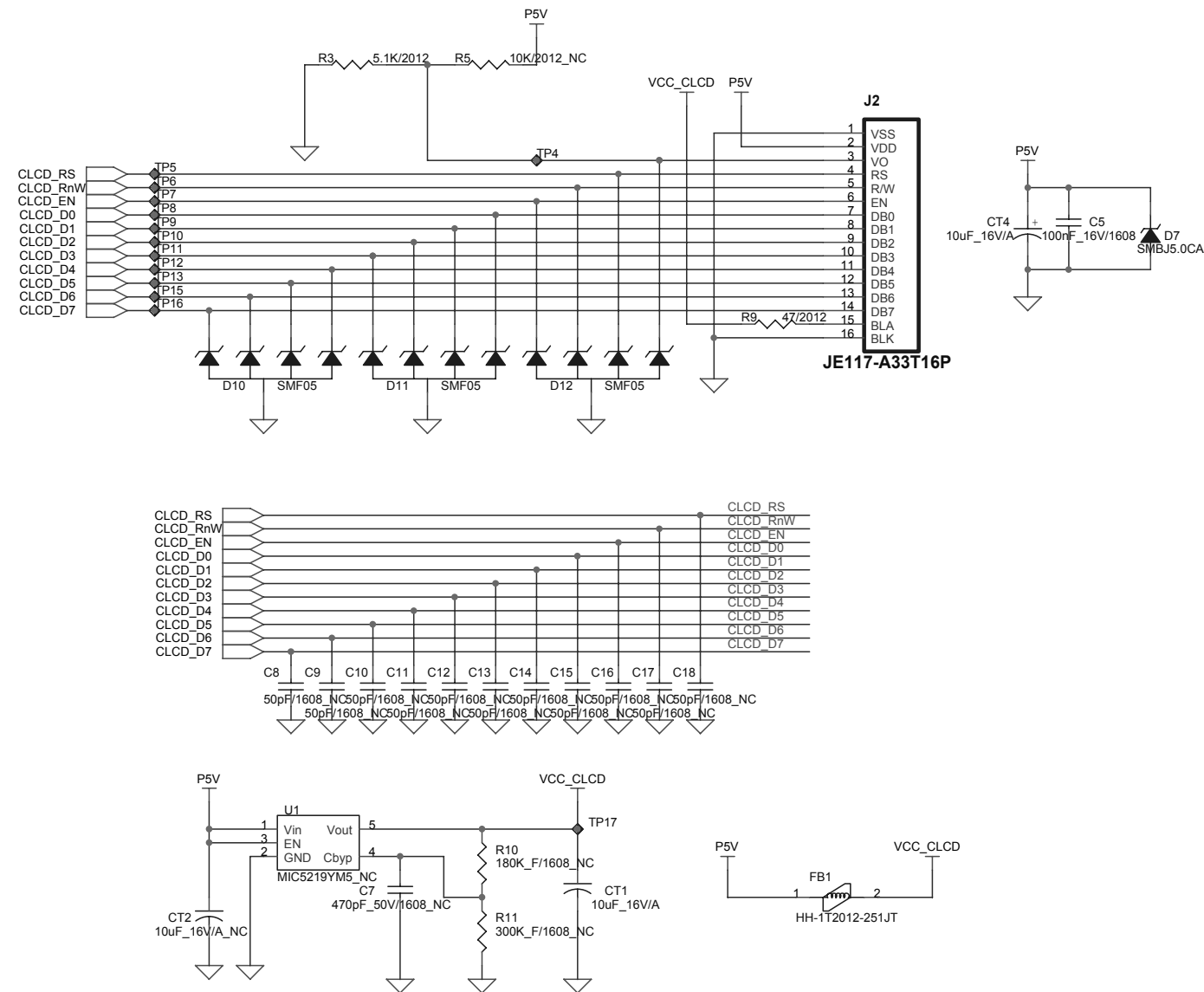


9-2. Display Board

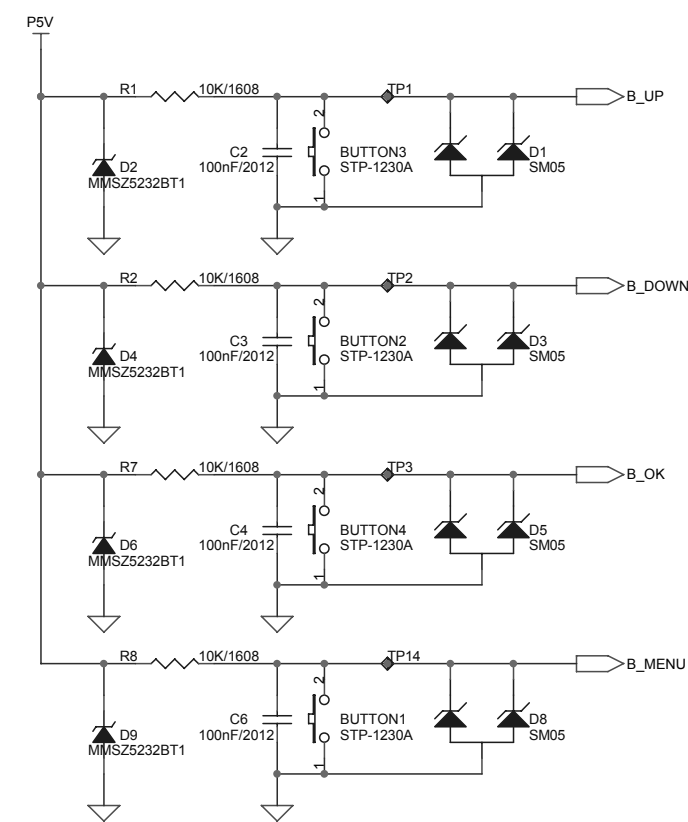
MAIN INTERFACE



CHARACTER LCD INTERFACE

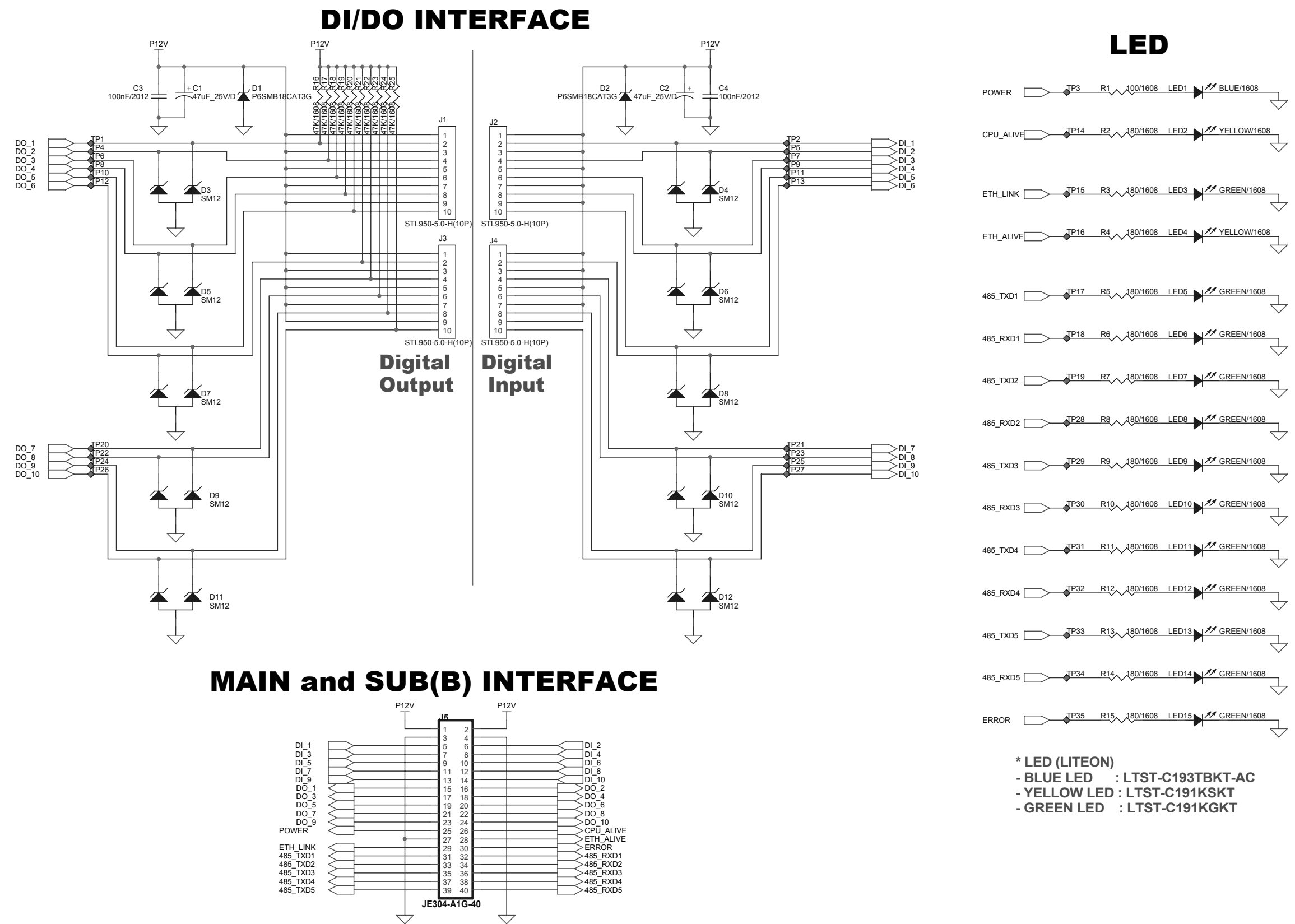


BUTTON





9-3. Sub Board





GSPN(Global Service Partner Network)

| Area | Web Site |
|------------------|---|
| North America | http://service.samsungportal.com |
| Latin America | http://latin.samsungportal.com |
| CIS | http://cis.samsungportal.com |
| Europe | http://europe.samsungportal.com |
| China | http://china.samsungportal.com |
| Asia | http://asia.samsungportal.com |
| Mideast & Africa | http://mea.samsungportal.com |

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